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Bulletin

THE ARGENTINE

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SOME ASPECTS OF OPHTHALMIA NEONATORUM *

GEORGE S. DERBY, M.D.

BOSTON

This paper is based principally on a series of 149 cases of ophthalmia neonatorum under my charge in the contagion wards of the Massachusetts Charitable Eye and Ear Infirmary, between Aug. 1, 1913, and Oct. 1, 1914. It is not presented primarily, however, as a statistical study, or as a consideration of the whole subject of ophthalmia neonatorum, but rather of those aspects of the disease which have appealed especially to me and about some of which there is yet considerable difference of opinion. In addition, attempt has been made to bring the sociological aspect of the disease into close relationship with the clinical side.

HOSPITAL OR HOME TREATMENT

In the first place, is a baby with a severe ophthalmia neonatorum best treated in the home or in the hospital? The obvious answer is, at the hospital, if we exclude those cases occurring in well-to-do families in which it is possible to employ a capable ophthalmologist and at least one skilful nurse. Sydney Stephenson,[1] however, states that he never takes a baby into the hospital unless loss of sight is imminent, as it is not wise to wean a baby with this disease if it can possibly be avoided. Stephenson is by no means alone in this opinion. The importance of this statement must be readily appreciated when we realize the impossibility of obtaining proper ophthalmic nursing in the average family in which this disease occurs, and the great and apparent danger to every other member of the household.

Such a statement is extremely significant and can mean only one thing, that the usual hospital treatment provided for this disease is unsatisfactory, that the advantages of skilful treatment of the eyes, which, it goes without saying, all ophthalmic institutions can offer, are offset by the lack of that specialized care which is so necessary in the early days of life, and more particularly in those instances in which it is absolutely necessary to wean the infant.

The reason for Stephenson's statement lies in the fact that the mortality in cases of ophthalmia neonatorum treated in the hospital is usually extremely high. Furthermore, in many cities suitable accommodations are not provided. For instance, Holloway,[2] in a recent paper on ophthalmia neonatorum, states: "The Philadelphia hospitals have largely avoided the admission and treatment of these cases. . . . No accommodation is provided for them in the only hospital in Philadelphia devoted exclusively to diseases of the eye."

Harman,[3] in his study of the statistics of cases of ophthalmia neonatorum occurring in London in 1911, states that the general and ophthalmic hospitals had difficulty in providing for these cases. "Of the cases occurring in the practice of midwives during the year, in twelve instances mother and child were admitted to hospitals or infirmaries, and in twenty the child alone was admitted; 101 other cases were treated by the ophthalmic and general hospitals as outpatients." This series comprised at least 278 cases; the exact number is not given.

This does not mean, however, that ophthalmia neonatorum is best treated in the home, but rather that in general the hospital treatment is unsatisfactory and often difficult to obtain.

To my mind there is but one answer to the question originally propounded. In the vast majority of severe cases, ophthalmia neonatorum should be treated in the hospital, for it represents an extremely contagious disease, dangerous to the eyesight, and produces a very large amount of visual loss. It is also my contention that these cases can be handled in the hospitals with comparative safety; that is, the mortality among them will be little greater than the normal mortality among infants in the first year of life, always taking into consideration the fact that infants affected with this disease average below normal in their general vitality and that they are subjected to unusual conditions, in that the eyes must be cleansed very frequently, thus necessitating frequent handling, which would be deleterious to any normal infant. This handling, however, would be less likely to do the child harm if carried out by a nurse skilled in the care of babies than by the less skilful attendant in the home.

MORTALITY

Our figures, such as they are, tend to substantiate the views expressed. In 149 cases occurring during fourteen months, 6 babies died in the hospital. Two of these were premature, 1 died of meningitis, 1 of pneumonia and 2 of hemorrhagic disease of the new-born.

To arrive at the true mortality, however, cases should be kept under observation for a year. Of 124 cases of our series admitted between October, 1913,

* Read before the Section on Ophthalmology at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

1. Stephenson, Sydney: Ophthalmia Neonatorum, London, George Pulman & Sons, Limited, 1907.

2. Holloway: Ophthalmia Neonatorum, Ophth. Rec., December, 1913.

3. Harman, N. Bishop: Incidence of Ophthalmia Neonatorum in London, Brit. Med. Jour., 1913, p. 1099.

and October, 1914, it was possible to follow the course in 81. Of these, 3 patients died in the hospital and 4 died after their discharge. Assuming the same mortality for the 43 who could not be followed up as for the 78 (81 — 3) that could, we should expect, at the most, 3 more deaths among these, which would give a total number of 10 deaths in 124 cases (80 deaths per 1,000), an extremely good showing, and comparing favorably with the infant mortality of the city of Boston for 1914, about 103 per 1,000, which in itself was a low figure.

Figures showing mortality in this disease are hard to obtain and are often misleading. One of our patients is of interest in this connection, a premature twin with gonorrheal ophthalmia. The eyes of the second twin were normal. The child was admitted to the hospital, the disease treated, and it was discharged from the hospital on the fiftieth day after birth. It died at home one day later, although it seemed in good condition when it was discharged. The other twin had died eleven days earlier. In spite of the handicap of the eye disease, it seems as though this child's life may have been prolonged rather than shortened by its stay in the hospital.

Among the well-to-do, with whom skilled nursing and medical attendance are a matter of course, mortality among babies having ophthalmia neonatorum must necessarily be higher than the normal mortality among babies in the same social condition. In infants of the poorer classes, however, if they be admitted to a suitably equipped hospital, the more scientific care which they receive should be enough to offset the handicap of the ocular disease, and the mortality should not be higher than the normal, and perhaps even less. It goes without saying that the most important single factor is the feeding, and to this I shall return.

An adequate system of charts and records is of great importance, so that the visiting physician may see at a glance the essential features which can be recorded about each case. A copy of our chart is appended, the general features of which we owe to Dr. F. B. Talbot of the Massachusetts General Hospital and formerly our consulting pediatrician. The credit of introducing modern and systematic methods of caring for these babies in the infirmary is largely due to him. The part of the chart relating to eyes was worked out by Dr. C. T. Porter, recently an intern in charge of these cases. This chart shows at a glance the temperature, pulse, respiration, gain or loss in weight, character of the stools, number, amount and character of feedings, number and character of eye treatments, the bacteriologic record, and the condition of the corneas at entrance and discharge.

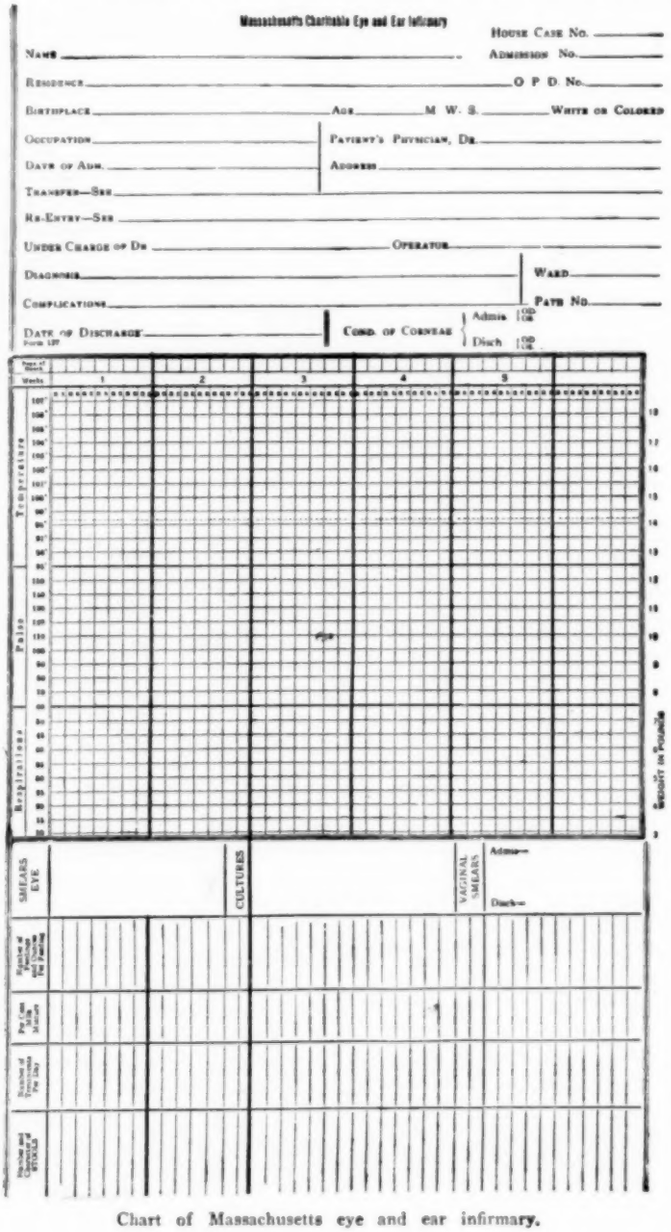

Chart of Massachusetts eye and ear infirmary.

In regard to feeding, it was only in March, 1914, that permission could be obtained from the hospital authorities to admit the mothers of these babies whenever possible. This is now being done. In frequent instances, when the mother is unable to come permanently into the hospital, she can often come twice a day to nurse her baby. At present about two thirds of our babies receive at least part of their nourishment from maternal sources. When the mother is sick and cannot come, it is frequently possible to obtain breast-milk from her, and finally, in those cases in which the maternal milk is not available and breast-milk is a necessity, it is obtained from other institutions. For bottle-fed babies the best certified milk is provided, and the mixture is prescribed by the consulting pediatrician, who makes a regular visit twice a week and is on call at all times.

No one can deny that these babies are subjected to unfavorable conditions, for in some of our most severe cases it is necessary to cleanse the eyes every half hour during the twenty-four, and it is impossible to expect a baby to thrive under these circumstances. Here is where a question of the nicest judgment comes in; on the one hand, the eyes need the most frequent and careful cleansing, on the other hand, the premature or sickly infant needs warmth, quiet and as little handling as possible. No general rule can be laid

down, except that it is probably best to err in favor of the general condition. Treat the eyes as infrequently as is consistent with safety. Watch the baby's weight. If the baby is losing ground, reduce the eye treatment even to once every three or four hours (when possible). If the baby is in good condition and stands the frequent handlings well, we may cleanse the eyes as often as is required by the severity of the disease, as shown by the amount of discharge and by the corneal conditions. Treatments of the eye, when this is possible, should never be carried out directly after a feeding, for in many instances the feeding will be regurgitated. Treat the eyes directly before the feeding, and then wait as long as possible. In the same way, the visits of the attending ophthalmologist should have regard to the time of feeding.

Finally, it should be repeated that in the zeal for frequent treatment the resisting ability of the baby must be remembered. Constant handling reduces this. The conjunctival discharge, as has been shown in a number of our cases, will persist for weeks in babies of low vitality in whom every known device of local treatment has been tried. Under careful observation as to the condition of the cornea, reduce the local treatment to once every three or four hours, and not infrequently an improvement will be noticed. The patient will begin to gain weight and the conjunctivitis will gradually subside.

PREMATURITY

Turning from the more general features of the disease, it may be of interest to take up some of the special points on which our series throws some light. Stephenson and other writers give prematurity as the chief general predisposing cause of the disease for three reasons: (1) less resistance, (2) thinness and delicacy of conjunctiva, and (3) lack of the vernix caseosa.

Just how important prematurity is in the etiology of our cases is somewhat difficult to determine. According to the information obtained from the parents and attendants in our cases, 17 were premature. In 9 of these the gonococcus was found in the ocular discharge. The weight was recorded in 110 cases; 16 patients were under 5 pounds and 11 more between 5 and 6 pounds.

MONOCULAR INFECTION AND PROTECTION OF THE SOUND EYE

Various writers say that ophthalmia neonatorum, as a rule, eventually become bilateral, though at the same time unilateral cases cannot be regarded as exactly rare. Statistics show monocular infections varying in percentage between 5 per cent. of 100 cases reported by McKenzie and Marshall, and 25 per cent. of 868 cases reported by Cohn.

In our series of 149 cases, 77 were definitely due to the gonococcus. Of these, 18 were monocular and remained so, a percentage of 23.4.

Forty-four infants out of 75 cases in which we have records on this point developed the disease in both eyes on the same day. Of the remaining cases, 18 infants developed the disease in one eye only, and of these, 8 showed evidence of conjunctivitis within three days after birth, while 10 developed it on the fourth day or later, 2 on the fifth day, 3 on the sixth, 1 on the ninth, 2 on the tenth and 2 later than ten days. It seems probable, therefore, that over one half of the monocular infections in this series were secondary and not acquired at birth. Of the remaining 13 cases the interval between the appearance of conjunctivitis in the two eyes was as follows: 11 within four days of the appearance in the other eye, 1 on the tenth day and 1 later. In no one of our cases did the infection ot the second eye occur after admission to the hospital, a tribute to the efficiency of the nursing force.

The precautions taken to avoid infection are simple. The child should lie on the infected side; its hands and arms should be confined, as is the usual hospital practice with young babies; and a drop or two of protargol or argyrol may be put into the healthy eye two or three times a day. I am inclined not to attach so much importance to this last measure as to general cleanliness. The main precautions are those to be taken by the nurse. That infection does not take place is entirely due to her ever-watchful care.

BACTERIOLOGY

Occasionally an infant or adult comes to the hospital presenting the signs of a conjunctivitis, and under the microscope we find extracellular and intracellular gram-negative organisms corresponding in their morphology to the gonococcus. The patient is admitted to the wards and energetic treatment instituted, with the result that at the end of a week the eyes are nearly normal and the patient nearly ready to be discharged. Under the system of smears alone, the case would be regarded as a gonorrheal conjunctivitis.

To obtain accurate results, steps should be taken in every hospital to separate the gonococcus from the other gram-negative, biscuit-shaped diplococci, the most important of which group, from our standpoint, is the *Micrococcus catarrhalis*. This cannot be done by smears alone, and thus cultures should be taken, as the *Micrococcus catarrhalis* grows on ordinary mediums and the gonococcus does not.

In each of our cases, before admission to the hospital, two smears are now taken and several cultures made on blood serum and on hydrocele agar. The statistics shown by our cultures and smears are not of particular interest except for a few facts. From the present series, cultures were taken in 125 cases, and the *Micrococcus catarrhalis* (or some other gram-negative diplococcus, not the gonococcus) was grown three times. This shows a source of error, small but worthy of note, as Axenfeld first pointed out.

The gonococcus was found in seventy-seven of our 149 cases of ophthalmia neonatorum, and the clinical picture was characteristic. This gives a percentage of only 51.3, considerably lower than the usually quoted two thirds of all cases.

Of 1,829 cases collected by Stephenson, 65 per cent. showed the gonococcus. In but few of these, however, were careful bacteriologic examinations made and other gram-negative diplococci excluded. This figure is probably too high.

Bartels,[4] in a series of 70 cases, in which the bacteriology was carefully worked out, found gonococci in thirty-eight, or 54 per cent. He believes the gonococcus is the etiologic factor in about 50 per cent. of cases.

The striking fact, however, in my series is the presence of 56 cases in which no organisms whatever were found in the smear, although two smears were always examined, and in the case of a negative result, often several more. In several of these negative cases

4. Bartels: Klin. Monatsbl. f. Augenh., 1911, Part 1, p. 557.

McKee's suggestion was carried out, examining scrapings of the conjunctiva, but without result. This large series of negative smears, nearly 38 per cent., is undoubtedly due to the fact that our patients enter the hospital at a comparatively late date, the average age on admission being slightly over 12 days, and in almost all of them some sort of treatment has been carried on and the organisms have largely disappeared. Probably in a certain number of these negative cases the disease was caused by the gonococcus, and allowance must be made for this.[5]

A feature in our cases has been the difficulty in cultivating the gonococcus, and in only rare instances has a growth been obtained. Thinking that our hydrocele agar was at fault, other samples were obtained and tried, samples of proved efficiency, on which little difficulty had been experienced in cultivating gonococci from the urethra and joints. Even with these, however, no better success was obtained. Probably the late admission of our patients has also something to do with this difficulty of cultivation. In four of our gonorrheal cases staphylococci were obtained in pure culture. Bartels and Stephenson have noted similar findings. In one gonorrheal case in our series staphylococci and streptococci were grown together.

THE MILD TYPE OF INFECTION

To those who have the opportunity of seeing large numbers of cases of gonorrheal conjunctivitis, both adult and infantile, the great difference in the course of the disease is at once apparent. The infantile type under proper treatment, not too long delayed, is almost invariably benign in that it seldom leads to corneal damage when properly treated. The adult type in our hands is of much greater severity both in the intensity of the symptoms and in the amount of corneal involvement and subsequent damage.

To what is due the mildness of gonorrheal conjunctivitis in infants as compared with that seen at all other periods of life? That it is not due to a gonococcus of diminished virulence seems probable, for it is well known that when the organism is transferred from the baby's eye to that of another member of the family, or to an attendant, the conjunctivitis that ensues is of the regular, severe, adult type. The latent or chronic gonorrhea of the female or male will produce acute infection in another individual. It is often stated that an infection in the adult eye in a person who has harbored the gonococcus for some time in the urethra will take a milder course than if implanted on an individual who has never harbored a previous gonorrheal infection.

If this be true, we might assume that babies born of gonorrheal mothers come into the world possessed of a certain amount of immunity, and we might expect to be able to obtain from them blood which would show a positive complement-fixation reaction. We should also expect, if this were present, that it would be more marked in those babies who show a mild type of gonorrheal conjunctivitis.

In the hope of throwing some light on this problem, blood was obtained from twenty-three of our gonorrheal patients and the test performed. It is no easy procedure to obtain blood from an infant, on account of the diminutive size of the veins. The most favorable location was found to be the external jugular vein, but even there it was impossible in a number of cases to secure blood, and in many weakly babies it was not considered justifiable to make the attempt. The tests were all performed in the laboratory of the Massachusetts General Hospital. Of the twenty-three, only two were strongly positive: one an ordinary case; the second, one of the worst cases in our whole series, showing a very acute process with corneal involvement on admission, and scars of both corneas on discharge, with a duration of hospital treatment of fifty-four days. In three cases the reaction was weakly positive.

In spite of the absence of a positive fixation reaction in most of these cases, I am of the opinion that the mildness of the ocular disease is best explained by the assumption that a certain degree of immunity, greater in some cases, less in others, is transferred by the gonorrheal mother to her offspring. This immunity, like the passive immunity obtained by the individual from an injection of diphtheria antitoxin, disappears in a comparatively short time, but while it lasts it is of a sufficient degree to influence favorably the course of the disease. It is not impossible that in certain instances it is sufficient actually to prevent infection, though this is hardly probable. In most cases the degree of immunity obtained is not sufficient to produce a complement-fixation reaction in the blood. Just how long this immunity lasts is uncertain, probably only a few months.

In babies infected by the gonococcus, one would expect to find a coexisting syphilitic infection more often than in the apparently normal infant. With this in mind, in those cases in which blood was taken for the complement-fixation test for gonorrhea, an attempt was made to secure enough blood to permit the Wassermann test to be made. It was possible to do this in twenty-two instances. Twenty-one of these were negative, none of which showed any active sign of syphilis. One case was triple positive and showed the lesions of an active syphilis. This coincides with Müller's experience and that of others.

Müller[6] shows that nearly all infants with active symptoms give a positive reaction. Children who are apparently healthy, but whose mothers have active signs or a positive reaction, react in only about 40 per cent. of cases, but many more often develop a positive reaction later, often with positive clinical signs. Bertha Sabin concludes that when the mother has syphilis at the time of conception or is infected during the first five months, the child is almost invariably syphilitic. For the detection of hereditary syphilis in the infant, it is probably more practical to test the mother's blood, on account of the difficulty in getting blood from the infant, and a positive reaction is more likely to be obtained.

COMPLICATIONS DUE TO THE GONOCOCCUS

Vaginal discharge, although it does not frequently occur in infants with ophthalmia neonatorum, has been occasionally noted. Stephenson notes one case in his series; Aichel reports a case and expresses the opinion that if it were looked for systematically it would be found more often. A number of other cases are to be found in the literature. As would be expected, it is most often found associated with a breech presentation.

In some one hundred of our cases, we have looked for a vaginal discharge (the exact number cannot be

5. It is to be regretted that in the cases of the series here reported no search was made for inclusion bodies.

6. Müller: Quoted by Boardman, Jour. Cutan. Dis., August, 1914.

given, as there is no exact record of the date on which the search was instituted—it was previous to December, 1913), and it has been noted in 17; in 15 it was slight, in 1 moderate and in 1 excessive. In 4 cases a gram-negative diplococcus (presumably the gonococcus) was found; in 3 instances associated with gonorrheal conjunctivitis, while in the fourth the ocular smear was negative, but clinically the case was gonorrheal. Unfortunately, there is no record of the presentation at birth in these cases. It seems, therefore, that congenital gonorrheal vaginitis is not a very rare condition.

No other complications due to the gonococcus appeared in this series. More recently, however, a patient with arthritis was admitted, the knee and wrist being involved. The knee joint was aspirated and the gonococcus grown in pure culture. A vaginal discharge was also present in this case.

THE PARENTS OF BABIES WITH GONORRHEAL CONJUNCTIVITIS

These people are dangerous to the community. They have infected at least one individual, their offspring, and they may infect others in the household. Also, the safety of their future children should be considered. Our duty does not end with the care of the infant. A determined attempt should be made to induce the fathers and mothers to seek treatment when necessary.

Through the praiseworthy efforts of our social-service department, in which the initiative to this end started, a few months ago a definite policy was instituted, and an attempt is now being made in every case to accomplish this result. The obstacles have been many, and the success thus far has been small in proportion to the results which may be accomplished in the future. Of 29 fathers from whom information could be obtained, 18 gave a history of previous urethritis, 2 gave a doubtful history, 2 fathers were under treatment at the Massachusetts General Hospital, 1 showed a gonorrheal urethritis and the other a chronic prostatitis with a weakly positive gonococcus-fixation test; 9 denied venereal disease.

Thirty-one mothers gave a history of vaginal discharge, 2 admitted syphilis and gonorrhea and 2 admitted syphilis alone. In 1 case gonorrhea was doubtful. Eighteen denied venereal disease.

Thirteen mothers were examined in the genito-urinary clinic of the Massachusetts General Hospital. One of these had both syphilis and gonorrhea, 1 had syphilis and a urethritis (gonorrhea doubtful), 4 had gonorrhea, 4 were negative and 3 more had a urethritis, but gonococci could not be found. Treatment was prescribed for those needing it.

CORNEAL DAMAGE: PLACING THE RESPONSIBILITY

This phase of the work in relation to conservation of vision largely represents prevention of future damage through education of the parents by the most valuable of all educators, experience, and by endeavoring to eradicate disease from them for their own personal good and for the safety of future children. These ends can only be accomplished by personal influence. There is no legal power to prevent the mother from infecting her own offspring at birth. As soon, however, as the child has come into the world and has developed a purulent discharge, the law provides for the conservation of its eyesight.

All cases coming into our hands with a damaged eye from this disease are reported to the Massachusetts Commission for the Blind, a careful investigation is made, and if sufficient grounds are found, the guilty person is prosecuted by the proper authorities. A number of successful prosecutions have been carried out in Massachusetts in the last three years, largely through the energy and persistence of our very active Commission for the Blind, and in the opinion of competent observers, these prosecutions have been a very potent factor in reducing the number of cases of blindness and damage to sight, all too frequent as a result of this disease.

Corneal involvement was present in 24 cases of our series (16 per cent.); in 8 but one eye was affected, in 16 both. In 16 of the 24, the gonococcus was found, and it was undoubtedly the cause of the disease in some of the cases in which the smear and culture failed to disclose it. Of these 24 cases, 8 were brought to the hospital within the first five days of the disease, 6 in from six to ten days, 3 ten days to three weeks, 6 at a later period, and on 1 there was no data.[7]

Of the twenty-four, eight were discharged with one or both corneas damaged. Five of these showed the gonococcus, 1 showed a negative smear and culture, but a gram-negative diplococcus was found in the vaginal discharge. Two were negative, and the presumption is that one of them was gonorrheal. In the other, the baby of a mother with vaginitis and father with urethral discharge, this baby being born in a lying-in hospital, a prophylactic was used. On the seventh day a discharge was noticed, and by mistake a drop of 25 per cent. nitrate of silver was instilled. The infant was brought to the infirmary with a large central corneal ulcer in the right eye, but with the left cornea clear.

Five patients were discharged with a single eye damaged. In three both were damaged, but a moderate degree of sight may be hoped for.

In one case the left cornea was perforated and staphylomatous, the right perforated also, but probably a little sight remained. This case, the worst of our series, was due to the negligence of the chairman of the board of health of the town in which it occurred. Unfortunately, it was deemed inexpedient to prosecute him, as the family of the child were impossible witnesses.

In no case in this series did corneal involvement take place after the child was received in the hospital. Our record of corneal damage compares very favorably with that of others. Bartels saw, in 38 cases of gonorrheal ophthalmia neonatorum, 10 eyes totally lost and 4 partially; in 2 cases the child lost both eyes.

Morax[8] reports 110 cases seen in the Hospital Lariboisière between 1906 and 1913. Among these there were 9 cases of perforation of the cornea, 6 of which already existed at entrance. In 9 more cases there was ulceration of the cornea without perforation, and of these 3 existed at entrance. This gives 9 cases of corneal damage after entrance in the hospital out of 110 cases, as compared with 77 cases in my series, with no corneal damage developing after the patient had been admitted. Taking Morax's summary, 18 patients out of 110 were discharged with corneal opacity more or less severe, a percentage of 16. Other figures of corneal damage are those of Groenow, 25 per cent. of

7. More recently we have had an ophthalmia neonatorum with a monocular corneal opacity in which the pneumococcus was found in large numbers. The opacity cleared in a week without damage.

8. Morax: A propos de traitement de l'ophtalmie gonococcique du nouveau-né, Ann. de gynéc. et d'obst., 1914, p. 129.

41 cases; Haupt, 28 per cent. of 45 cases; Kroener, 25 per cent. of 62 cases; Druais, 25 per cent. of 24 cases.

Harman[3] found in a series of 231 cases of ophthalmia neonatorum of all degrees of severity, and non-gonorrheal and gonorrheal cases combined, 13 cases of corneal damage, 5.6 per cent. Of the 13, 3 were blind in both eyes and 5 more blind in one eye.

In my series of 77 cases in which the gonococcus was found in the secretion, 5 patients were discharged with damaged cornea, a percentage of only 6.5.

All our patients with corneal damage have been carefully investigated, and when possible, steps have been taken to bring the guilty party to book. One physician has been prosecuted and found guilty, but appealed, and the case is not yet settled. One midwife was forced out of practice, but no further penalty was inflicted in view of her advanced age (84). One midwife was educated in her duties. In the others, either no ground for prosecution was found, or the difficulties were so great as to make conviction seem impossible. The results of this endeavor to place the responsibility are not brilliant in this series, but this method undoubtedly forms one of the most potent weapons in preventing loss of sight from this disease. It should be remembered also that in Massachusetts we are working under very favorable conditions as compared with all but a very few of the other states, as we have a good birth-reporting law and an effective law for the reporting of ophthalmia neonatorum. Moreover, we have an active Commission for the Blind, which has made it its business to see that these laws are enforced. What is needed next is greater control by the State Board of Health over the local boards, since these local boards vary greatly in efficiency.

LOCAL TREATMENT

The local treatment of ophthalmia neonatorum has occupied a large share of the attention of writers on this subject. There is nothing to be added to what has been said many times over, and indeed, no advance in this direction is to be expected until some specific drug or serum is discovered.

Various antigonoeoccus serums and vaccines have been used in the past, but on the whole the results have been indifferent. The latest of these, the vaccine of Nicolle and Blaizot, although heralded as a great advance, has hardly borne out the claims of its adherents. Among others, it has been used by Morax, who reports a favorable influence on the disease in a few cases and no influence in others. He would only advise employing it as an adjunct to the regular treatment with the silver salts.

In our cases the eye is cleaned as often as necessary to keep it reasonably free of pus, be it every twenty minutes or every three hours. The lids are wiped clean and then separated with the fingers; the conjunctival sac is washed out with boric acid squeezed from a pledget of cotton, several drops of one of the milder silver salts are instilled, the excess wiped away, and the lids are liberally smeared with some bland salve, such as White's ointment or boracic ointment. Injury to the corneal epithelium is most carefully guarded against. In the later stage of the disease, if the conjunctiva becomes boggy and little improvement is taking place, silver nitrate and zinc sulphate are called into use.

Regarding the silver preparation to be used in the acute stages of the disease, I believe that a non-irritating drug is indicated; that the stronger silver preparations, such as nitrate, do good in inflammations by their ability to set up a reaction and draw in protective substances from the neighboring tissues; and that their place is therefore in those inflammations in which a sufficient reaction does not already exist. This is not the case in gonorrheal ophthalmia, since the reaction is often too great (especially in the adult form) for the conjunctival circulation to take care of. Bactericidal power is of little importance, as the gonococci lie too deep to be reached by any remedy which we have yet at our disposal, and since, as I among others have shown, the germ-killing power of even the stronger silver preparations is markedly impaired as soon as they come in contact with the tissue proteins. Argyrol is, at the most, a very weak bactericide to start with.

In the present series argyrol 25 per cent. has been used almost exclusively. Probably protargol in weak solution, 2 per cent. or 4 per cent., would be equally efficacious, although its specific gravity is not so high. The controversy over the merits of the various silver salts has waged long and has not arrived at a final settlement.

For the reasons stated above, I believe that in the acute stages of the disease a mild remedy is indicated. The high specific gravity of argyrol, 25 per cent. (in the neighborhood of 1.070), may be of value in its cleansing action; it is surmised that it tends to float the pus out of the hollows of the conjunctival sac. A manifest advantage of such a solution, and one to which I have not seen reference, is the early warning given of a break in the corneal epithelium by the immediate staining of the area involved.

It is not improbable that in the past harm has been done in this disease by the use of too strong applications. It would seem that the virtue of the milder ones lies partly in their negative qualities.

It should be expressly stated, however, that the foregoing remarks apply solely to the treatment of ophthalmia neonatorum, and not to its prophylaxis, in which the nitrate is supreme.

Before discharge of gonorrheal patients from the hospital, two negative smears at an interval of twenty-four hours or over are required.

ABSTRACT OF DISCUSSION

Dr. Joseph L. McCool, Portland, Ore.: It seems to me that the best way to handle ophthalmia neonatorum depends largely on the locality in which one practices. Those of us who live on the Pacific coast do not see as many cases as do our colleagues in the East, for we do not see so much poverty and wretchedness. Furthermore, the demand being insignificant, our facilities are inadequate for the proper handling of these cases. In view of these facts it seems to me that so far as we are concerned these cases can be treated best at home with, of course, as careful instructions as we can give to those in whose care they are placed.

In considering the subject of prophylaxis, I was surprised to learn from several of our most prominent physicians whose obstetric experience is large that there is a lack of uniformity in the application of the Credé method; some of them use it only occasionally. This is to be deplored, as there can be no compromise on this question. It should be used in every case. In educating the public to report this disease, it is well to remember that we can get better results if we assure them that a large percentage of these cases are not gonorrheal in origin and should not be concealed from any sense of shame. This, I believe, was pointed out by the late Mark D. Stevenson several years ago. Dr. Derby's applica-

tion of the complement-fixation test to these cases is very interesting and original, and again emphasizes the fact that it is a mistake to regard gonorrhea as a purely local disease. I am inclined to agree with the essayist in the use of mild cleansing solutions used at frequent intervals and, despite the poor bactericidal value of argyrol, to follow with the liberal use of this silver salt.

DR. W. H. ROBERTS, Pasadena, Calif.: I would like to ask Dr. Derby if he has any figures showing in what proportion of cases in which ophthalmia neonatorum develops, the Credé method has been employed?

DR. H. H. STARK, El Paso, Tex.: Dr. Derby has called to my attention a point that I have overlooked in the treatment of clinical cases. I have probably the worst class of clinical cases of any man here, all Mexicans of the lower class, people without any means, very little education and hard to control. I have probably had in the last five years between eight and ten thousand cases in the clinic; of these, a hundred to a hundred and twenty-five were cases of ophthalmia neonatorum. These cases no doubt represented only a small per cent. of the cases in our community. Those of you who are acquainted with Mexico know of the prevalence of blindness which occurs in childhood. This blindness in the majority of cases is due to this disease. It is impossible to put these patients in the hospital as the mother will not go, neither will she permit her child to go. Consequently one must rely on the treatment given at home. We therefore have adopted a routine treatment consisting of 2 per cent. nitrate of silver solution every other day, in the clinic, argyrol at home several times a day, and a wash of 1:5,000 permanganate of potash. With the use of this medicine I doubt if the child's eyes are ever opened and washed out with the permanganate solution, for it is a common thing for patients with eye trouble to come in several weeks after beginning treatment and ask for permission to wash their faces. It is an exception to have a patient admitted to the clinic in whom the cornea is not clouded. But with this inefficient treatment it is seldom that we lose an eye. Consequently I think there may exist an immunity, as suggested by Dr. Derby Recently we have proved in our clinic that there exists an immunity against syphilis, by having the Wassermann test done on fifty patients, thirty men and twenty women, complaining of no especial ailment other than minor ills, in which we found a uniformity of 65 per cent. positive. I therefore believe there may exist a partial immunity in the children against the eye infection.

DR. CHARLES L. WILLIAMS, Topeka, Kan.: I have gained some valuable information from Dr. Derby's paper. I would like to say, however, that I believe in treating these patients only in a hospital. My only bad results have been when I left the patient in the home with or without the nurse. There is too much responsibility resting on the ophthalmologist to allow these patients to be anywhere except in the hospital. They are too important. I insist on the mother going there with the child. I do not use anything except the nitrate of silver, 1 grain to the ounce. It will do the work if properly used. It is to be used twice a day, and the main part of the treatment is flushing the lids. Keep the secretions thoroughly washed away by irrigations every half hour if necessary. After that applications of ice, to reduce local temperature, are comforting to the patient and retard the infection.

DR. EDWARD JACKSON, Denver: After seeing Dr. Derby's work in his hospital, as I did a few months ago, I was impressed with the idea that he had there worked out nearly an ideal method of treating ophthalmia neonatorum, with the hospital facilities he had and his ability to bring in the mothers at least two or three times a day to nurse the infant if not kept there all the time. But for that line of treatment you must have the hospital, together with those facilities, and so organized. A great many of these patients will have to be treated without those facilities. There should be a distinction made between the treatment under the circumstances Dr. Derby has set forth, and under other circumstances that a great many men will have to contend with.

With the child in the hospital and with efficient, experienced nurses in charge, there is no reason, certainly not in the great majority of cases, for resorting to silver nitrate or other strong applications. Regular and thorough cleansing is all that is necessary. But if the patient must be left with the parent or nurse in the home for several hours, and sometimes without the care of a nurse, then I believe the use of the silver nitrate cannot be given up. The bad results I have seen have all been due to repeating the applications too frequently. I do not refer to the weak solutions, say 1/10 grain to the ounce, but to 2 or 4 per cent., which is perhaps strong enough to use in any case. If such a solution is to be used it should be applied not more often than once in two days, or perhaps once in twenty-four hours. This, with careful cleansing, is the best thing that can be depended on in home treatment. Strong solutions I have seen used as often as once in six hours, and such treatment is certain to be followed by serious results.

DR. ROBERT W. MILLER, Los Angeles: Unquestionably one of the most important things is prophylaxis, and I trust that the ophthalmologists will continue to insist on prophylactic measures and work through the proper channels persistently and systematically to secure that end. I would not refer to the use of concentrated silver nitrate solutions but for the fact that I have met within the last few months a number of very capable ophthalmologists who still defend their use and employ them. The one thing we wish to avoid is corneal involvement. To my mind the use of concentrated nitrate of silver solution tends to invite corneal infection by damaging or destroying the epithelial layer. Previous statistics have indicated pretty clearly that we cannot rely on any known drug or chemical agent for the destruction of the gonococci in the deeper portions of the connective tissue. The better plan is to wait and let nature conduct, as well as she can, her campaign against these invading bodies. The keynote consists in constant, gentle cleanliness. We have had many conflicting reports in regard to the action of argyrol. Its manufacturers have told us that it is bactericidal. Others have told us it has no bactericidal effect whatever. Bruns, of New Orleans, reported a few years ago having employed argyrol in a series of cases with very gratifying results. The point of vital importance is the continuous "flooding" of the cornea and conjunctival sacs, with the 25 per cent. argyrol solution. I have had an opportunity of using it in a number of cases and have been well pleased with it. I do not speak against the use of nitrate of silver entirely. I admit its value in certain cases. I speak only against the concentrated solution, that may prove harmful to the eye.

DR. E. C. ELLETT, Memphis, Tenn.: In regard to the method of prophylaxis, I do not think we should countenance any modification of the Credé method. This should not be taken to mean that there are not other methods which are quite satisfactory, but if we present a solid front on this point it would avoid any confusion in the minds of those who are guided in these matters by the experience and advice of others, and would result in placing the responsibility for the occurrence of these cases where the responsibility belongs.

DR. GEORGE S. DERBY, Boston: I must take issue with Dr. McCool, in that I do not think it is safe to handle these cases in the home unless one has a nurse. This disease needs skilled nursing more than any other feature. More injury to the cornea is done by scratching the epithelium with the nail than in any other way. I believe it would be difficult to work out the statistics of disease after treating by Crede's method. That question is best determined by statistics obtained from the lying-in hospital.

In regard to what Dr. Williams said, I would simply like to repeat what I said concerning the value of argyrol. In addition, it is nonirritating, which is a great advantage, and secondly, it will bring to your attention a break in the epithelium when it first occurs. In reply to the question why we do not use nitrate of silver in the sound eye, I can say that under our present method of treatment the sound eyes do not become infected. Argyrol is much less irritating and we do not see the necessity of putting in a drop of silver when the argyrol does just as well. In Massachusetts the law requires physicians to report all cases of ophthalmia neona-

torum immediately. One hesitates to disagree with Dr. Jackson, but after what I have seen of the treatment of ophthalmia neonatorum, I cannot help but feel that nitrate of silver is contraindicated. I do not believe nitrate of silver works as a bactericide. It does good by setting up a reaction. In diseases of this kind you have a marked reaction and you do not ned any more. Treat it mildly and you will get on better than if you put in stronger drugs. I believe thoroughly in 1 per cent. of nitrate of silver as a prophylactic.

A DISCUSSION OF THE CANCER MORTALITY

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In discussing the cancer mortality there are a number of questions which should be considered with it. While the figures which I have used are, within the limits of slight error, correct, such questions as the relation of improved methods of diagnosis to the cancer mortality, or the relation of changes in the composition of the population to the cancer mortality, must be given proper consideration in the final analysis of any cancer statistics. Whether or not these questions are factors of importance in the mortality rates of cancer is, at present, more or less a matter of personal opinion, and will remain so until through some laborious investigation their exact status will be determined.

The population figures used here were compiled from the reports of the census bureau, and the mortality figures were all taken from the report of the Division of Vital Statistics of the Census Bureau. That the mortality reports were drawn from a large portion of the population of the United States is evidenced by the fact that the registration area for deaths represented 40.50 per cent. of the population of the United States in 1900, and 58.30 per cent. in the year 1910.

In order to obtain sufficient material for several of the tables, I was compelled to confine the figures to those for the registration states, which does not include quite the population of the registration area. In the year 1900 they include 40.48 per cent. of the population of the United States; in the year 1910, 51.37 per cent. of that population. The figures and rates have been carefully compiled, and in no single year give divergences which would be considered unusual. Without further discussion at this time I will give the result of a survey of the cancer mortality for ten years in the registration area. In the registration area for the year 1913, there were 49,928 deaths from cancer. Assuming that cancer is as prevalent in that portion of the population not included in the registration area, the total deaths in the year 1913 would be 76,694.

TABLE 1.—REGISTRATION AREA OF CANCER FOR PERIOD 1904-1913

Year	Deaths	Per Cent. of Total Deaths	Mortality Per 100,000	Estimated Population
1904	23,395	4.24	70.15	33,349,137
1905	24,330	4.46	71.36	34,094,605
1906	29,020	4.41	69.12	41,983,419
1907	30,514	4.44	70.93	43,016,990
1908	33,464	4.84	71.52	46,789,913
1909	37,562	5.13	73.84	50,870,518
1910	41,039	5.10	76.22	53,843,896
1911	44,024	5.25	74.27	59,275,977
1912	46,531	5.55	77.01	60,427,247
1913	49,928	5.60	78.88	63,298,718

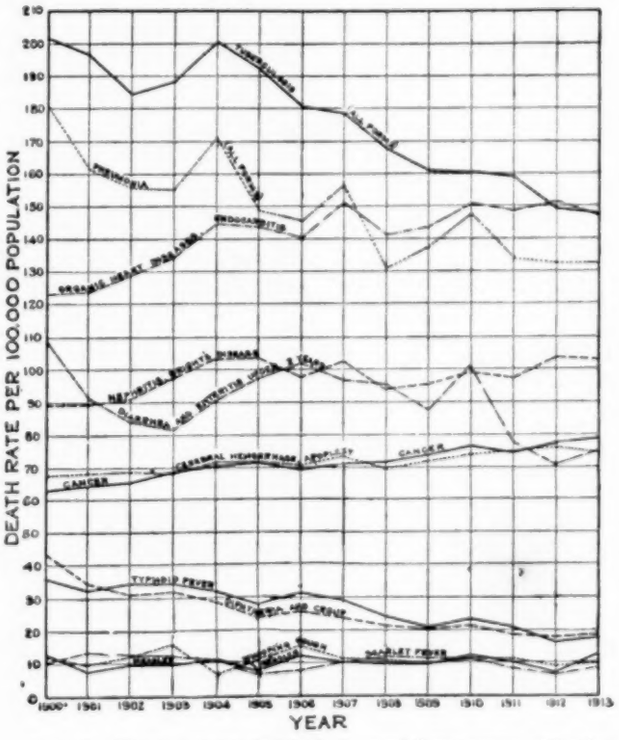

Chart 1.—Deaths per one hundred thousand from cancer and other causes, 1900 to 1913 (mortality report, census bureau).

In reviewing the cancer mortality over a ten-year period, from 1904 to 1913, inclusive (Table 1), a steady increase is noted in all years except the year 1906. In the year 1904 there was a mortality of 70.15 per one hundred thousand; in the year 1913 it had increased to 78.88 per one hundred thousand, a gain of 8.73 per one hundred thousand in a ten-year period. This represents an increase of 12.47 per cent. in the cancer mortality per one hundred thousand for a ten-year period. The relation of the cancer mortality to the general mortality during the same period shows a corresponding increase. In the year 1904 the deaths from cancer represented 4.24 per cent. of the total deaths, while in the year 1913, 5.60 per cent. of all deaths, an increase in its relation to the general mortality of 32.07 per cent. The cancer mortality in this ten-year period, both in its relation to the general mortality and in its relation to the population, shows, except in the year 1906, a steady increase. This increase is graphically illustrated in Chart 1 (taken from the mortality statistics of the census bureau), and for a fourteen-year period shows a gradual rise in cancer deaths. The decline of the death rate in several of the major infectious diseases, namely, tuberculosis, pneumonia, typhoid fever, diphtheria and croup, stands in contrast to the cancer mortality.

SEX DISTRIBUTION

If our figures show an increase in cancer deaths, it would be pertinent to inquire into the distribution of this increase in the male and female portions of the population (Table 2).

A glance at Table 2 shows that cancer is more frequent in females than males. In the year 1904 cancer deaths in males constituted 1.61 per cent. of the total mortality; in the year 1913, 2.25 per cent., an increase of 39.75 per cent. in its relation to total deaths in ten years. In the female population for the year 1904 the cancer mortality constituted 2.63 per cent. of the total mortality, and in the year 1913, 3.35 per cent., an increase of 27.38 per cent. in the decennium. Comparing the percentage of increase in males and females in relation to the general mortality, we have in the male population an increase of 39.75 per cent., and in the female, 27.38 per cent.; an 11 per cent. excess increase in the male population.

This change in the distribution of the cancer mortality is strikingly shown by comparing in Table 2 the percentage of cancer deaths that occurs in the male and female population. In the year 1903, 37.96 per cent. of all cancer deaths occurred in the male population, while 62.04 per cent. of the cancer mortality occurred in the female population, and ten years later, 1913, 40.15 per cent. of the cancer mortality occurred in the males and 59.85 per cent. in the females. It appears here that the pendulum of cancer mortality is slowly swinging out of the female and into the male population. This is graphically shown in Chart 2. The lower line over the double cross-hatching represents the percentage that the cancer mortality in male and female population bears to the total mortality, and the upper line over the single cross-hatching indicates the percentage of cancer deaths in males and females by years.

There can be little argument regarding the correctness of this particular phase of cancer mortality. This is a discussion of the distribution of cancer deaths in two divisions of the population, and no matter what the relation of other conditions be to the general cancer mortality, it could not affect, to a great extent, figures whose basis of comparison is entirely within the cancer deaths tabulated.

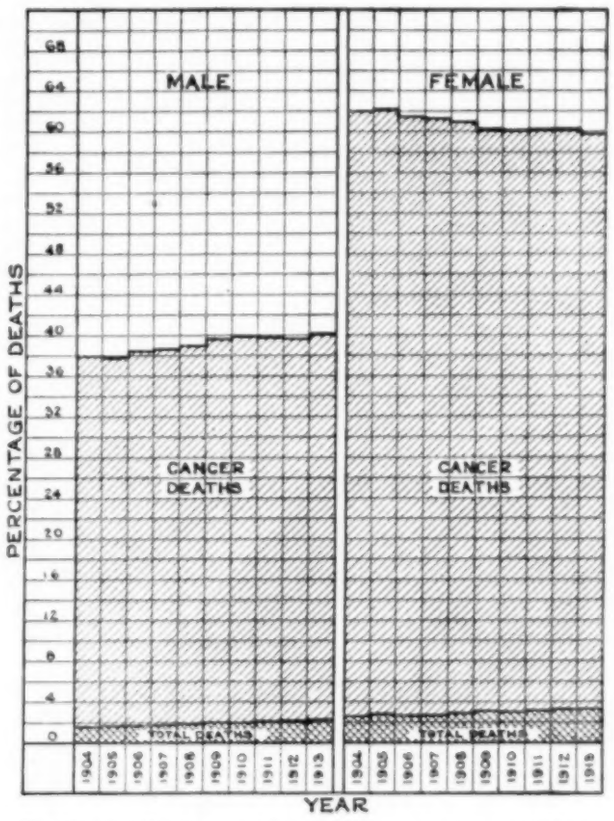

Chart 2.—Relation by sex and year of cancer deaths to total deaths, and the distribution of the percentages of cancer deaths in the male and female population.

AGE DISTRIBUTION

It was necessary, in order to obtain accurate population figures in the table showing age distribution of cancer, to confine the data to that obtained from the registration states. I also purposely constructed these tables from the data for the years 1900 and 1910, which, being census years, would add to the accuracy of the tables in their respect to the population figures.

The age distribution of cancer is now and has been one of the most interesting phases of cancer mortality. Whether or not cancer is more frequent at earlier or later ages has been a matter of conjecture for some years. The changes in the age distribution of cancer and its bearing on the mortality can only be discerned by proper statistical investigation.

In Tables 3 and 4, we have the age distribution and mortality for the years 1900 and 1910. By referring to these tables it will be noticed in the year 1900 that 10 per cent. of the total cancer mortality occurs prior to the fortieth year, and that in the year 1910 about 9 per cent. of the cancer mortality occurs prior to that age.

The number of cancer deaths at various age periods, however, does not indicate properly the age distribution of cancer. It has been a common error for persons inter-

TABLE 2.—DEATHS FROM CANCER, REGISTRATION AREA, 1904-1913; PER CENT. OF TOTAL DEATHS IN MALES, PER CENT. OF TOTAL DEATHS IN FEMALES, AND PER CENT. OF TOTAL DEATHS *

Year	Male Deaths from Cancer	Per Cent. of Cancer Deaths	Per Cent. of Total Deaths	Female Deaths from Cancer	Per Cent. of Cancer Deaths	Per Cent. of Total Deaths	Total Cancer Deaths	Per Cent. of Total Deaths
1904	8,881	37.96	1.61	14,514	62.04	2.63	23,395	4.24
1905	9,189	37.77	1.68	15,141	62.23	2.78	24,330	4.46
1906	11,166	38.48	1.70	17,854	61.52	2.71	29,020	4.41
1907	11,800	38.67	1.72	18,714	61.33	2.72	30,514	4.44
1908	13,045	38.98	1.89	20,419	61.02	2.95	33,464	4.84
1909	14,918	39.72	2.04	22,644	60.28	3.09	37,562	5.13
1910	16,373	39.90	2.03	24,666	60.10	3.06	41,039	5.09
1911	17,525	39.81	2.09	26,499	60.19	3.16	44,024	5.25
1912	18,464	39.68	2.20	28,067	60.32	3.35	46,531	5.55
1913†	20,045	40.15	2.25	29,883	59.85	3.35	49,928	5.60
	141,406	39.30	1.95	218,401	60.70	3.02	359,807	4.97

* Assuming the population of the United States to be constant for the next ten years, and the general death rate to average that of the registration area for the period 1904-1913 (15.06), at the present rate of increase of cancer deaths, would give in the year 1923, a surplus of 19,819 deaths from this cause, making a total of 101,427 deaths for the year.

† Estimated population of the United States in 1913, 96,765,573.

preting statistical tables to pay too much attention to percentages in analyzing the age distribution of deaths, for the real measure of the true mortality at any age period is found in the specific rates for that age period. In examining the specific rates for cancer for the two years, 1900 and 1910, it will be found that up to the fortieth year there are no marked increases in the mortality rates. After the fortieth year, however, the deaths per hundred thousand show an increase in the year 1910 over all rates in the year 1900; furthermore, this increase is a progressive one, that is, the greater the age period the greater the relative and absolute increase. In the year 1900, between the ages of 40 and 50, there were 90.88 deaths per hundred thousand persons at that age, while in 1910 there were 101.36 deaths at the same period. In the period from 50 to 60 years, in 1900,

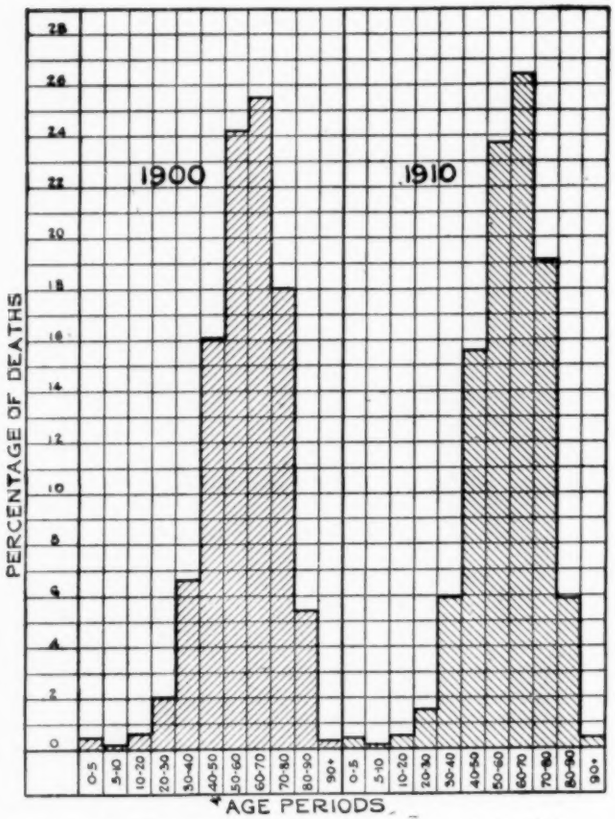

Chart 3.—Percentage of cancer deaths by age periods, 1900.

there were 198.43 deaths per hundred thousand, and in 1910, 229.42 for the same period; while in the age period from 70 to 80, in 1900, there were 495.84 deaths per hundred thousand, and in 1910, 661.54. The greatest increase in mortality rates is seen in the age period from 80 to 90 years, which was 587.44 per hundred thousand of the population in 1900, and 811.87 per hundred thousand in 1910.

This is graphically illustrated in Charts 3 and 4. Chart 3 gives the percentages of deaths which occur in the various age periods. It will be noted (Chart 3) that the greatest percentage of cancer deaths in 1900 and 1910 occurred in the age period from 60 to 70 years and that the percentage of deaths declined rapidly to 90 years and over, but a true graphic picture of cancer mortality at various age periods is shown in Chart 4. Here it is seen that the deaths per hundred thousand of the population between 60 and 70 years is lower than in any of the age periods thereafter, even though that age period contributes the greatest number of cancer deaths. The most interesting point on this chart is the increase in the mortality in ten years as evidenced by the height of the column at various age periods in 1910 as compared with those of 1900.

SITE OF CANCER

Unfortunately the statistics concerning this most interesting phase of cancer mortality cannot be analyzed as they should be on account of the manner in which these causes of death are classified, but there are some points of general interest which are worth reviewing.

Table 5 gives the deaths per hundred thousand of the population from cancer according to the organs affected by year periods for ten years. The most frequent site of cancer, as evidenced by the mortality, is cancer of the stomach and liver, from which 31.2 persons out of every hundred thousand in the registration area died in the year 1913. The next in order

TABLE 3.—CANCER IN REGISTRATION STATES, 1900

Age Period	Deaths From Cancer Reg. States	Deaths per 100,000	Per Cent. of Total Cancer Deaths	Estimated Population, Registration States
0- 5	62	2.99	0.49	2,072,797
5-10	26	1.31	0.20	1,984,846
10-15	83	2.29	0.65	3,624,065
15-20				
20-25	260	6.94	2.04	3,745,605
25-30				
30-35	853	27.47	6.68	3,104,747
35-40				
40-45	2,055	90.88	16.09	2,261,283
45-50				
50-55	3,092	198.43	24.21	1,558,210
55-60				
60-65	3,259	333.49	25.52	977,227
65-70				
70-75	2,302	495.84	18.03	464,260
75-80				
80-85	697	587.44	5.46	118,651
85-90				
90-95	46	464.27	0.36	9,908
95 and over				
Unknown ...	34	86.86	0.27	39,143
Total	12,769	63.97	100.00	19,960,742

of frequency is that of the female genital organs, the mortality for which was 12.2 per hundred thousand of the population. Cancer of the intestines, with a mortality of 10.5 is followed closely by cancer of the breast with a mortality of 7.3. In the decennial period 1904-1913, all forms of cancer show an increase. The most marked increase is seen in cancer of the intestines, 45.83 per cent., and cancer of the mouth is next in order with an increase of 40.90 per cent. Cancer of the breast with cancer of the stomach and liver increased 19.67 and 19.08 per cent., respectively. Cancer of the female genital organs increased 18.44 per cent., while cancer of the skin has shown little if any increase in the period. It is interesting to note here the percentage of increase of cancer which should be easy to diagnose, and that which is more difficult. From the standpoint of diagnosis, these cancers could be divided roughly into those which can be easily observed, and those of internal organs. The greatest percentage increase of cancer is that of cancer of the intestines, 45.83 per cent., which is nearly balanced by the increase of cancer of the mouth, 40.90 per cent., and, likewise, cancer

of the stomach and liver has increased 19.08 per cent. and is balanced by an increase of 19.67 per cent. in cancer of the breast.

From the information obtained from the foregoing statistical tables we can come to but one conclusion, that is, that the cancer mortality is increasing. To be sure that the increase is real we must exclude the possibility of an increase in the number of reported deaths by better diagnosis, and changes in the population which would tend to add additional numbers to that portion in the cancer ages.

Undoubtedly new methods of diagnosis have greatly facilitated the detection of cancer, and if proper morbidity reports could be obtained the result of these methods would be reflected in the rates for incipient cancer, which would always include a fair percentage of obscure and borderline cases.

The matter of diagnosis of advanced cancer is, in most cases, a much simpler matter. The classical symptoms of advanced cancer are and have been the same for a number of years, and most physicians are conversant with them. In mortality statistics of cancer we are dealing with reports of cancer cases the symptoms of which are so evident as to be considered the primary cause of death, and the question of refined diagnostic methods and the inclusion of borderline cases cannot be a large factor in determining the rates. I submit that it is hardly probable that physicians of a decade ago were so deficient as not to be able to recognize advanced cancer.

If the increase in mortality rates shown in the tables were dependent on changes in the composition of the population, we should have to consider sex and age distribution, the two possible changes which could bring about an increase in general cancer rates without an increase in the specific rates.

On reviewing the population figures for sex distribution in the registration states, I find comparatively little change in its composition. In 1900, 50.03 per cent. of the population was male and 49.97 female, and in the year 1910, 51.4 was male and 48.6 female. Since the incidence of cancer is considerably less in males than females, changes of this character in the population would, per se, tend to decrease rates. So far as the changes in sex distribution of the population are concerned we must eliminate them as factors in this rise in the cancer mortality shown in the preceding tables.

Knowing as we do that the bulk of cancer deaths occur after the fortieth year, any change which would add to the population after that year without a corresponding increase in that portion prior to the fortieth year would cause an increase in the general cancer mortality. A study of the population in the registra-

TABLE 4.—CANCER IN REGISTRATION STATES, 1910

Age Period	Deaths From Cancer, Reg. States	Deaths per 100,000	Per Cent. of Total Cancer Deaths	Estimated Population
0- 5	159	3.27	0.44	4,867,909
5-10	64	1.44	0.18	4,438,038
10-15	197	2.28	0.54	8,652,398
15-20				
20-25	562	6.25	1.55	8,992,169
25-30				
30-35	2,152	29.29	5.95	7,347,865
35-40				
40-45	5,642	101.36	15.59	5,566,408
45-50				
50-55	8,589	229.42	23.73	3,743,780
55-60				
60-65	9,576	429.01	26.46	2,232,102
65-70				
70-75	6,926	661.54	19.14	1,046,950
75-80				
80-85	2,139	811.87	5.91	263,467
85-90				
90-95	159	716.51	0.44	22,191
95 and over				
Unknown	28	36.17	0.08	77,416
Total	36,193	76.60	100.01	47,250,693

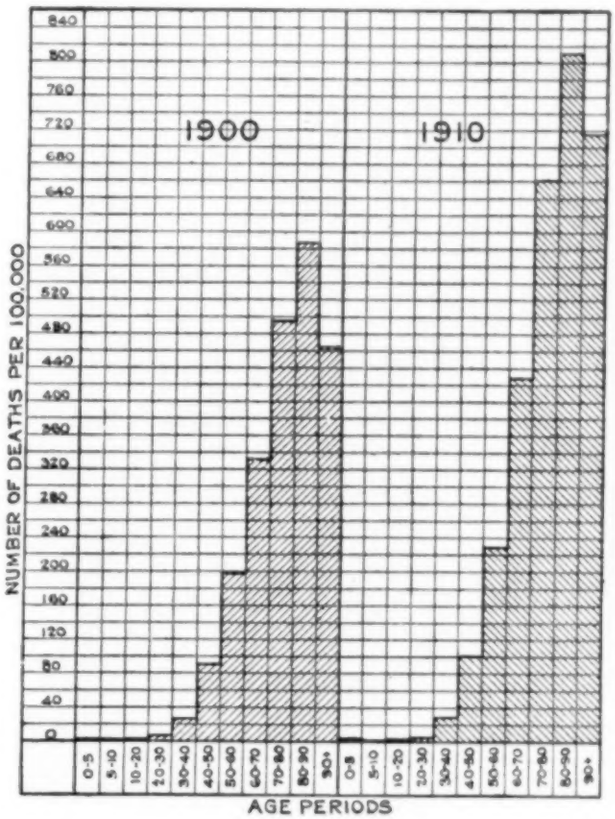

Chart 4.—Deaths per one hundred thousand of the population by age periods, 1900 to 1910.

TABLE 5.—CANCER IN REGISTRATION AREA; DEATHS PER ONE HUNDRED THOUSAND OF POPULATION FROM VARIOUS FORMS OF CANCER, 1904-1913

Location of Cancer	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913
Mouth	2.2	2.3	2.2	2.3	2.5	2.8	2.9	2.9	3.0	3.1
Stomach and liver	26.2	26.3	26.1	27.0	27.9	29.3	30.6	29.3	30.6	31.2
Intestines	7.2	8.0	7.8	8.3	8.5	9.2	9.8	9.8	9.8	10.5
Female genital organs	10.3	10.7	9.7	10.2	11.2	11.2	11.4	11.3	11.7	12.2
Breast	6.1	5.9	5.8	6.0	6.5	7.0	6.9	7.2	7.3	7.3
Skin	2.3	2.4	2.3	2.6	2.7	2.9	2.7	2.7	2.9	2.7
Other or unspecified organs	15.9	15.9	15.2	14.6	12.3	11.3	11.9	11.0	11.6	11.9
All forms	70.2	71.4	69.1	70.9	71.5	73.8	76.2	74.3	77.0	78.9

tion states by age groups in the years 1900 and 1910 shows that the percentage of persons living in each age period did not vary by 1 per cent. in the ten years. The percentage of population included in the ages 0 to 40 years in 1900 was 72.80 and in 1910, 72.58, while the percentage of population included in the ages after 40 years in 1900 was 27.20, and in 1910, 27.42, differences so slight that they are negligible. More convincing is a comparison of the specific mortality rates. These rates are computed on the cancer deaths in certain groups of population, and no matter what changes are taking place in the composition of a population the only factor which could change the mortality rates within these groups would be an actual increase or decrease in the number of deaths per one hundred thousand in any particular group. We have seen in Tables 3 and 4 there was a marked increase which is specific for each age period, and which must be in itself genuine.

If we cannot account for the increase in the cancer mortality by better diagnosis or by changes in the composition of the population I submit that for the past decade the cancer rates in the registration area show a true increase.

16 West Saratoga Street.

HOSPITAL INTERNSHIPS IN OPHTHALMOLOGY *

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MEMPHIS, TENN.

There are certain matters of interest to which your attention should be called. The first is in regard to the comparative shortness of the program. We were limited this year to fifteen papers, on account of the fact that the second day of the meeting is to be given up to exercises to commemorate the completion of the Panama Canal. In view of the important part that our profession has played in making possible the achievement of this great work, it is fitting that we turn aside for a moment from the main object of our coming together, and pay tribute to those workers whose discoveries and attainments have erected to their memories a "monument more lasting than brass."

We have further cause for a season of congratulation in that we are devoting ourselves to the celebration of a great commercial and engineering accomplishment, a work of peace, at a time when the older nations of the earth are wrapped in a terrible, destructive and desolating struggle; and in the enjoyment of the blessings of conditions that permit the unruffled pursuit of our usual work, we should not fail to both feel and express our sympathy for those, bound to us by the ties of a common task, whose lot is less fortunate, whose ways are less tranquil and whose labors are so rudely interrupted.

It has been the custom for many years for the section to invite a distinguished visitor from some other country to be a guest at the meeting; but after due consideration it was decided not to extend such an invitation this year. Disturbed conditions in Europe made it very doubtful if any of those whom we specially desired would have found it possible to come, and the shortness of the program already referred to made it seem advisable to give the time to our own members as a matter of choice and in justice to those who have brought the section to its present efficiency. Before the weight of these two conditions was fully realized, a sentiment was gaining ground to the effect that occasional, instead of regular, invitations to foreigners to participate in our meetings would be a more dignified attitude for us to adopt, and would at the same time make the recipient feel that he was the more complimented. In view of these facts, the officers of the section feel that they do not need to offer any apology for the omission of this feature.

The policy of the program has been, as in previous years, to encourage as much as possible those men who have not heretofore contributed to our proceedings; but you will find on the list some of those well-known names, without which a meeting of this section could hardly be successfully conducted, men to whom it is our pleasure to listen again and again. "Age cannot wither" them, "nor custom stale" their "infinite variety"; and may the day be far distant when our deliberations will lose the leaven of their presence.

Let me remind you, as my immediate predecessors have done, that the admirable features of the program are due to the energetic and well-directed efforts of our secretary, whose labors are the keystone of the arch, and without which our structure would fall to the ground. Nothing that I could say would be more than should be said in acknowledgment and appreciation of his more than efficient work, and those particulars wherein the program falls short of your expectations mark the occasions when an officious chairman or executive committee has interfered with his plans.

From appropriate committees a number of interesting subjects will be presented for your consideration, and among the most important is that of the Committee on Education in Ophthalmology. Their report is printed and will be distributed in time for it to be read by each of you before it is brought up for discussion and action. This committee, as you will see, met similar committees from the American Ophthalmological Society and the American Academy of Ophthalmology and Oto-Laryngology in Boston in October, and will present for your approval a plan whereby a board of nine would be appointed from these three organizations to pass on the qualifications of those desiring to appear as specialists in ophthalmology. While such a board will have no legal standing, its seal of approval can easily become the hall mark of genuine merit, and properly managed and supported by the organizations which create it, such a board could accomplish a great deal. Expressions from many quarters justify the expectation that this suggestion will be favorably received, and since this section has never been remiss in identifying itself with those things which stand for the advancement of ophthalmology, it can be expected to consider carefully their proposal, and approve it if it seems to promise what its sponsors believe it will do.

Another communication of much interest is that from the Committee on the Conservation of Vision. Although a child of this section, this committee was a youngster of such promise that it was weaned away from its real parent and adopted by the Council on Health and Public Instruction. We still retain an interest in its purposes and welfare, and are glad to know, from Dr. Allport's report, of the very excellent work which is being done. The need of some central

* Chairman's address, read before the Section on Ophthalmology at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

organization with sufficient funds and adequate machinery for carrying on this work is being felt by all who have concerned themselves in it. Dr. Allport has given much time and labor to this matter, as any member of his committee can testify; but it is not good that the welfare of so great a cause should depend on the self-sacrificing efforts of any one man. It is hoped that all the interests looking to the conservation of vision will be federated and the work carried on from an adequate center.

Thanks to the activity and energy of the members of the committee, the Knapp fund continues to serve the usual purposes for which it was founded.

The fund furnishes the Knapp Medal for meritorious work presented to this section. The committee on award is of the opinion that no contribution made to the last meeting was sufficiently noteworthy to justify conferring the medal this year. Certainly the fund deserves the cordial support of all those interested in the progress of ophthalmology, and I especially request you all to support it. Subscriptions in sums of less than $10 will be gladly received, but they do not entitle the subscriber to the two volumes mentioned.

It is the custom for the chairman of this section to make some reference in his address to such point or points of interest to the Section on Ophthalmology as he thinks should have special attention or investigation. In accordance with that custom, it is my desire to invite your further consideration of certain aspects of the question which have been so to the fore in recent years, the preparation of the ophthalmologist for his his work. A phase of this subject which has not yet been touched on very fully is that of the available facilities for hospital work. Closely related to this are the plans which have been put into force in two of our leading state universities. One which was explained to you at length by my predecessor has had further trial during the past year at the University of Minnesota, and has given great satisfaction. Briefly, it consists in the employment of a number of men for a period of three years, at an increasing salary, who assist in the clinical work and in the instruction of the undergraduate and graduate students. These men are designated as "fellows," and the scheme contemplates the ultimate employment of six. The development of this plan was brought out in a paper before the Conference on Medical Education in Chicago in February. A somewhat similar plan is in vogue at the University of Michigan, where a man serves the department for three years as intern, assistant and instructor, respectively, one year each, at a salary which increases each year. The duties of the intern require no special elucidation. The second year is spent as assistant to the head of the department, with full charge of the operating room and morning treatments of all outpatients. In the third year he gives instruction in refraction, does refraction, and has charge of the laboratory in the mornings.

This scheme has suggested the idea that the very interesting work on the classification of hospitals by the Council on Medical Education, and the parallel work about to be undertaken by the American College of Surgeons, might be advantageously supplemented at this time by collecting information relative to the work offered by various special hospitals in this country in the shape of internships. A questionnaire was therefore formulated and sent to all the special hospitals listed in the American Medical Directory, and I wish to present to you the data gathered from a perusal of the replies. That this information is incomplete is true, but every one who has attempted a collective investigation will sympathize with the fruitless efforts that were made to secure responses from all the hospitals. Some institutions were inadvertently omitted, but the result is nevertheless of some worth.

The value of an internship is particularly great in postoperative work, but almost equally great in certain severe inflammatory and traumatic conditions. The whole question is summarized, and much more is suggested, by considering the case of those men who have had good "courses" in ophthalmology, with cadaver and clinical work, and who can perform a creditable operation for cataract, for instance, but who cannot tell the next day whether or not the eye is pursuing a normal and satisfactory postoperative course.

Answers were obtained by some means from twenty-five institutions. Many of these are eye, ear, nose and throat hospitals; but as far as possible to ascertain them, the facts set forth apply to the eye service alone. It was impossible to arrive, by any reasonable effort, at the facts concerning the special departments of general hospitals, but it must not be forgotten that in many of these an excellent service in ophthalmology can be obtained, and this is especially valuable where an outpatient department is also accessible to the interns. In such a case, the tour of duty for the intern should be simultaneous in the wards and outpatient department, since many of the patients are never house patients, and a service limited to the house would be inadequate. It would afford no opportunities for refraction, perimetry, muscle work, etc., and very limited ones for ophthalmoscopy.

Comments on the subject can be best made in a general way, because the information was not always exact. Previous general hospital experience is always desirable, but seldom required of an applicant. Since the supply of positions does not equal the demand, hospitals can fix rather high requirements, and certainly previous hospital experience, or a satisfactory equivalent in general practice, would be very desirable not only to the institution, but also to the future ophthalmologist, and should be a necessary condition for the applicant.

An outpatient department is maintained by all the hospitals answering this inquiry, but indefinite information was given in regard to interns' duties in that department. Unless the arrangement is to appoint the intern from the clinical assistants, or from externs, the interns should serve a definite tour of duty in the outpatient department, because the work in the house alone does not give sufficient experience with the various forms of functional examination and with the use of the ophthalmometer, ophthalmoscope, perimeter, and tropometer, with which one must be familiar. Refraction, which constitutes such a large and important part of the daily work of the ophthalmologist, can be learned only by practice, and the opportunity for this is found only among the outpatients. The same can be said of many of the minor ailments and milder inflammatory diseases, which constitute a much larger part of one's work, especially in the beginning, than serious maladies and capital operations.

In reading over the replies to the circular letter, one is impressed with the fact that a hospital intern is no longer at school. Little is demanded of him beyond a certain amount of routine work. He does some

history taking, which varies greatly in quantity and quality in different places, and renders a certain assistance in the care of patients, operating room duties, etc. He has abundant opportunities, but there is no one whose duty it is to see that he profits by them. In the larger institutions with a graded house staff this is not the case, and the junior is not only given a certain amount of instruction by the senior, but is required to perform certain duties. This is very desirable, and in proportion as this system does not exist, the present plan seems to fall short of accomplishing the best results. As was pointed out in the report of the Committee on Hospital Efficiency of the Philadelphia County Medical Society, one of the functions of a hospital is the education of doctors and nurses, and some plan could be profitably adopted whereby the intern could receive more or less systematic instruction, and be actively supervised in his work, which would greatly increase that particular hospital's efficiency as an educator. When we consider that the average intern enters on his duties in a special hospital in the most profound ignorance of the rudiments of his work, the advisability of such a plan would seem to be apparent. Various ways suggest themselves for solving this need. In institutions in which systematic instruction is given, he should be required to attend such instruction, that is, lectures, in the first part of his term. Otherwise the matter could be placed in the hands of a senior intern or house surgeon; or, if only one intern is employed, in the hands of an executive officer or committee or some one specially charged with the work. A little systematic instruction at the beginning will clarify many otherwise confusing subjects, and this instruction can take the form of quizzes, lectures or merely the outlining of a course of study, with such conversations or other interrogations from time to time as will enable the intern to demonstrate that he is preparing himself to take advantage of his opportuni- preparing to take advantage of his opportunities.
eases and surgical work will be presented to him sufficiently forcibly; but some special means should be taken to see that he avails himself of the opportunities that are offered to study refraction, ophthalmoscopy and ocular pathology. An intern, like a student, is rarely able to proportion his work wisely, and a little guidance from some one more experienced would enable him to use his time and opportunities to the best advantage. In brief, our present plan gives a man abundant opportunities, but fails in that it does not insure his taking advantage of them.

Incidentally, this inquiry has revealed some interesting facts in regard to the special hospitals in other particulars. You are all aware that the American Medical Association is now conducting an investigation and classification of hospitals, and out of this work will come much good along the line of which I have especially spoken, as well as in other matters pertaining to hospital efficiency. With such plans as those in use at the universities of Minnesota and Michigan, and the systematic course in ophthalmology given by the University of Colorado, and the graduate courses now being formulated by Harvard University, and the close relation which obtains and which is being further developed between the department of ophthalmology and the department of research medicine at the University of Pennsylvania, both precept and example are at the disposal of those who are charged with these problems of medical education.

CHRONIC NEPHRITIS

ANALYSIS OF 250 CASES IN PRIVATE PRACTICE*

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AND
R. L. CUNNINGHAM, M.D.
LOS ANGELES

These 250 cases have been tabulated from patients in our private practice occurring over a period of eighteen years. They are considered entirely from the clinical standpoint, and as they represent, in the main, office cases or ambulant patients, they must be regarded as representing Bright's disease of the milder or earlier type. There is no intention here to enter on the intricate mass of renal pathology, nor have we investigated or tried the several functional kidney tests, which lie beyond the province of this paper; but it is intended to call attention to several groups of nephritic cases observed and treated in Southern California. In making the diagnosis, other factors than the examination of the urine have been considered. It is certain that many patients who show traces of albumin and a few casts do not suffer from nephritis, while true renal disease may occur without albuminuria; but we do recognize that certain persistent findings in the urine, accompanied by changes elsewhere with definite symptoms, are manifestations of a primary or secondary disturbance of the renal function which, when early recognized and given proper treatment, is easily controlled and may become quiescent or arrested.

For the better study of these cases for clinical purposes, an arbitrary classification into four groups has been made (Table 1).

TABLE 1.—CLINICAL GROUPS OF NEPHRITIS CASES

	No.
1. Primary	75
2. Cardiovascular	82
3. Miscellaneous association	24
4. Secondary to tuberculosis	69
Total	250

With few exceptions, our cases of true nephritis fall clinically into what is called the chronic interstitial type, in which class they will be discussed. The exceptions include a few that belong to the chronic parenchymatous type and are numbered among those in Group 2, who died; one patient in Group 1 died—acute hemorrhagic. A few others, at first acute or parenchymatous, improved, and naturally fell into the interstitial variety which, we believe, includes most of the degenerative changes that take place in the kidney, whether primary or secondary, as well as the contracted or sclerotic kidney.

EXPLANATION OF CLINICAL GROUPS

The cases are placed into these groups with reference to their apparent etiology.

Group 1 embraces those which, from their history, followed acute infectious diseases and alcohol, as shown in Table 2.

Group 2 embraces those which accompanied, preceded or followed chronic endocarditis or arteriosclerosis, with or without a history of definite earlier infection.

* Read before the Section on Practice of Medicine at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

Group 3 embraces those which occurred in the course of chronic diseases, infectious or otherwise, and which could not naturally fall into the other groups.

Group 4 embraces those which occurred in the course of pulmonary tuberculosis.

In Table 3 are given the age at onset of disease, sex, and previous duration of disease for each of these groups. In Chart 1 the early symptoms are shown. The occupation is given in Table 4.

Only the fourth or tuberculous group is not carried out in detail, as the course, treatment and results were

TABLE 2.—ETIOLOGY

Cause	Groups 1. Primary No.	2. Cardio-vascular No.	3. Miscellaneous No.	Total No.
Alcohol	3	3	0	5
Arteriosclerosis	0	25	0	25
Acute rheumatic fever	1	10	1	12
Arthritis, chronic, streptococcus viridans infection	0	1	3	4
Cholecystitis	2	2	0	4
Diphtheria	1	0	0	1
Endocarditis, chronic	0	3	0	3
Hyperthyroidism	0	0	2	2
Malarial fever	1	1	0	2
Measles	1	1	0	2
Myocarditis	0	7	0	7
Peritonitis	2	0	0	2
Pernicious anemia	0	0	4	4
Pneumonia	18	11	4	33
Pregnancy	2	0	0	2
Pyonephrosis	0	1	0	1
Renal calculus	0	1	0	1
"Rheumatism"	4	2	0	6
Scarlet fever	9	3	0	12
Septicemia	0	0	2	2
Syphilis	0	2	3	5
Tonsillitis	5	3	0	8
Typhoid fever	5	4	0	9
Unknown	21	2	5	28

TABLE 3.—AGE AT ONSET, AND PREVIOUS DURATION

	Groups 1. Primary No.	2. Cardio-vascular No.	3. Miscellaneous No.	4. Tuberculous No.	Total No.
Males	40	48	12	44	144
Females	35	34	12	25	106
Age at Onset (Decade):					
First	4	0	2	0	6
Second	7	1	1	3	12
Third	11	5	1	32	49
Fourth	17	9	4	23	53
Fifth	14	15	4	8	41
Sixth	15	26	8	1	50
Seventh	6	16	4	2	28
Eighth	1	10	0	0	11
Total	75	82	24	69	250
Previous Duration of Disease:					
Less than 1 month	5	1	3	5	14
From 1 to 3 months	2	4	2	9	17
From 3 to 6 months	8	8	1	6	23
From 6 to 12 months	11	10	2	6	29
From 1 to 2 years	16	19	3	6	44
From 2 to 5 years	17	21	10	18	66
From 5 to 10 years	4	10	0	12	26
From 10 to 15 years	9	5	2	5	21
From 15 to 20 years	1	2	0	0	3
From 20 to 25 years	1	0	1	1	3
More than 25 years	1	2	0	1	4

dependent on the pulmonary trouble, and did not seem pertinent to the paper. Where there was a true nephritis, the pulmonary symptoms were aggravated; therefore, on the whole, the discussion limits itself to the first three groups.

It would seem that the true nephritis, or destruction of renal tissue, belongs to those cases of Group 2—cardiovascular. Whether or not those in the other three groups can rightly be classed as true nephritis, until real vascular changes elsewhere have taken place, is an open question. Certainly, in following several patients in the first, third and fourth groups, we have found that their trouble has disappeared and the urinary findings have become normal after periods ranging from several months to two years, and we do not believe that nephritis is so cured. It has been said that there is an early, curable stage of nephritis, with slight renal changes, in which the kidney again assumes its normal function; but it seems, from a clinical point of view, more probable that these cases are merely a result of toxemia and do not produce any real permanent change in the kidney tissue. Examples of this type are eighteen cases (thirteen in Group 1 and five in Group 3) in which the urinary findings became normal. The largest number began after chronic constipation and gastro-intestinal disturbances, three after severe tonsillitis, two after acute alcoholism, one after pleurisy with effusion, and one patient has had albumin with granular casts in his urine for thirty-five years, discovered through life insurance examination, and, at present, clinically well, aged 51. In none of these did the heart appear enlarged or the second aortic accentuated. Other cases of similar nature, but of shorter duration, not here included,

TABLE 4.—OCCUPATION AT ONSET

Occupation	Groups 1. Primary No.	2. Cardio-vascular No.	3. Miscellaneous No.	4. Tuberculous No.	Total No.
Actor	0	0	0	1	1
Artist	0	2	1	0	3
Aviator	0	0	1	0	1
Banker	4	4	1	5	14
Barber	1	0	0	0	1
Carpenter	0	0	0	2	2
Chauffeur	0	0	1	1	2
Chemist	0	2	0	1	3
Child	4	0	1	0	5
Civil engineer	1	1	0	1	3
Clergyman	0	3	0	0	3
Clerk	6	3	0	8	17
Commercial traveler	0	1	0	0	1
Domestic	3	0	0	2	5
Farmer	0	2	0	3	5
Housewife	23	28	9	15	75
Laborer	2	4	0	2	8
Lawyer	4	0	0	4	8
Manufacturer	2	1	1	1	5
Merchant	0	8	1	1	10
None	4	3	2	4	13
Nurse	2	2	0	0	4
Office work	3	2	1	2	8
Physician	3	3	1	4	11
Plumber	0	0	0	2	2
Publisher	2	0	0	0	2
Real estate	2	3	0	1	6
Retired	2	8	2	0	12
Student	5	1	2	3	11
Tailor	1	0	0	5	6
Teacher	1	1	0	1	3

have occurred in our practice, but with sufficient frequency to emphasize their clinical occurrence. In Group 4, the tuberculous group, it has been a frequent observation that, as the pulmonary trouble improves, the albumin and casts have disappeared, along with increased elimination of urea. The continued taking of abundant or of excessive protein many result in similar findings, a fact which has been noted often in tuberculous patients. One of this type, aged 37, in Group 4, has been under observation six years, and during this period he suffered for two years, off and on, from repeated attacks of headache; at the same time albumin and casts appeared in his urine. It was found that each time these attacks occurred he had returned to an increased or forced protein diet. For the past two years the excessive proteins have been cut off, with the result that symptoms have disappeared and the urine remains normal, so that, excepting the infectious type, included in all four groups (because even the fourth or tuberculous group shows severe infection in the last stages), the disease tabulated can well be caused by toxemia, which may soon disappear, or continue to manifest itself

until other organs as well as the kidneys become involved, vascular changes take place and true nephritis results. When true nephritis is present, the best outcome possible is an arrest of the disease, and that the patient be clinically well for years.

AGE AND RESIDENCE AT ONSET

The analysis of the several groups shows such results as one would expect. Primary has the largest number in the fourth and fifth decades; cardiovascular in the fifth, sixth and seventh decades; tuberculosis in the third and fourth. In all four groups, the previous duration of the illness shows that the largest number suffered from two to five years. The occupations give little information except that they are among indoor workers, and the larger number had previous mental or physical overstrain.

The residences of these patients and the location at the onset of the disease have been carefully studied in each case. Neither had any special bearing, one way or the other. A total of ninety-eight patients resided in the Pacific Coast States at the onset of the disease; seventy-two in the Central States, seventy in the Atlantic States, and ten developed their trouble in foreign countries.

EARLIEST SYMPTOMS

Among the earliest symptoms in the primary group, the most frequent, in their order, were weakness, cough and asthmatic symptoms, digestive disturbances, headache, muscular pain, and nervousness and restlessness. Each of these is easily accounted for, and it would seem that the chest symptoms are due to the development of chronic bronchitis and emphysema, so often found secondary to nephritis. Contrasting this with the same cases during the course of treatment, we find the digestive disturbance comes first in frequency, nervousness and restlessness second, and there is a marked diminution in complaint of weakness, as well as headache and asthmatic symptoms.

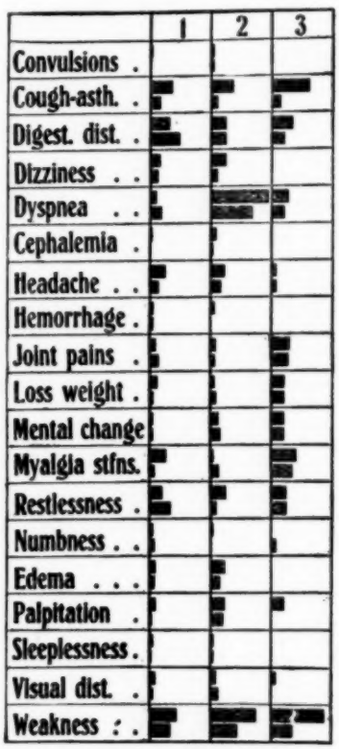

Chart 1.—Early persistent symptoms.

In Group 2, the chief early symptoms, in order of their frequency, are dyspnea, weakness, cough, vertigo, digestive disturbance and edema. During the course of the treatment of patients of this group, dyspnea, which was the most frequent early symptom, disappeared in eleven of the cases, while the weakness, cough and edema disappeared in about 50 per cent.

In Group 3, the earliest symptoms in frequency were weakness, cough, digestive disturbance, dyspnea and joint pains. During the time of treatment, the cough and dyspnea lessened, while the joint pains remained in evidence. The joint pains in this group are explained by the four cases of chronic infectious arthritis, and marked pyorrhea alveolaris, in which the *Streptococcus viridans* was grown from the roots of removed teeth and vaccine given. It is interesting to note that the cough or asthmatic symptoms in each group diminish to a minimum under treatment, and a marked improvement occurs in the weakness and digestive disturbance.

The marked symptoms of dyspnea in Group 2 can be explained by the cardiovascular complications. Here are found the cases with the high blood pressure and arteriosclerosis. Arteriosclerosis, other than that due to syphilis, seems not well understood, but it appears to be the result of longstanding hypertension, which, with cardiac hypertrophy, is generally recognized as a compensatory factor to nephritis, aiding the kidney in maintaining its function.

Of course, arteriosclerosis may cause nephritis, and it appears that each may be the cause of the other. In the second group, the cardiac hypertrophy alone occurred in forty-four and the second aortic sound was accentuated in forty-seven cases out of the sixty-five. The Wassermann test was made and found negative in nine cases. Syphilis occurred in five cases, with a positive Wassermann reaction.

The percentage of retinal changes found was less than is usually reported. It was surprising in looking over the cases to find how little complaint of disturbed vision was made, and often no retinal change was found in the early or less severe cases. Marked retinal changes were shown in eight cases by neuroretinitis (arteriosclerotica) and in seven by hemorrhage into the retina; they occurred among the fatal cases. These always indicate a bad prognosis, of from six months to one year as the average duration of life. In Group 2, hemiplegia occurred in five cases, varying in severity from partial paralysis to complete loss of power.

OBJECTIVE FINDINGS

While the greater number of these cases came under observation before the present functional tests for the renal activity were available, it may still be of interest to note briefly the facts represented by those commoner methods of examination which have been longer in use. The higher readings of specific gravity were found in Groups 1 and 3. The average of all readings in Group 3 was lower than in any of the other groups, and depended (of course) chiefly on the total amount of urine, which was usually large. Readings of less than 1.005 have been frequent, and have occurred in each group, the lowest being 1.002, in Group 1.

Albumin was present at one time or another in all of the urines examined, only a few specimens, however, showing more than a slight cloud, and many showing but extremely faint traces. Many cases had intervals of freedom from albuminuria, but in all cases the albumin reappeared with exacerbation of symptoms.

Cylindruria, too, has been constant, the granular casts being by far the most frequently found, with hyaline coming next; a fair number had waxy casts at times, while only three had epithelial casts. We have not seen any special significance in the type of casts observed.

The urea has been followed as closely as possible, and the results of our examinations tabulated. Nothing of special note is shown. Roughly, the amount of urea excreted in the urine has varied with the diet. In some instances, the low output of urea was associated with exacerbations of the disease, the severe symptoms and the lower urea being both signs of deficient renal activity. In these cases we have seldom seen a high urea except when the patient was doing well clinically. In several instances we have seen a decreased urea output precede a clinical retrogression, and we have often seen an increased urea output followed by clinical improvement. We therefore do believe that it is a help to determine the urea of the urine when the diet is known and conditions can be controlled. We acknowledge, however, that we have found these observations to be of help only when supported by clinical evidence.

Our systolic blood pressure readings cover most of our cases, and for a great many of them a large number of readings were taken. As we would have expected, our highest readings were found in cases of the cardiovascular group, the highest being 270 mm. Hg, average 169 mm. Hg. Here, too, was the highest average blood pressure. Next comes the primary group with an average of 141 mm. Hg, then the miscellaneous group with an average of 127. In the tuberculous group we found lower readings than elsewhere, as a rule. The lowest reading of all recorded was 80 mm. Hg, in a case of Group 3, *Streptococcus viridans* infection with arthritis, which had also the clinical picture of toxic nephritis. This is hardly in accord with the statement of Struempell that all renal disturbances are associated with elevated blood pressure. Certainly, in these cases, the blood pressure was more markedly elevated in those nephritics who had also well-developed arteriosclerosis, especially with atheroma, than in those which we have looked on as primarily renal disturbance.

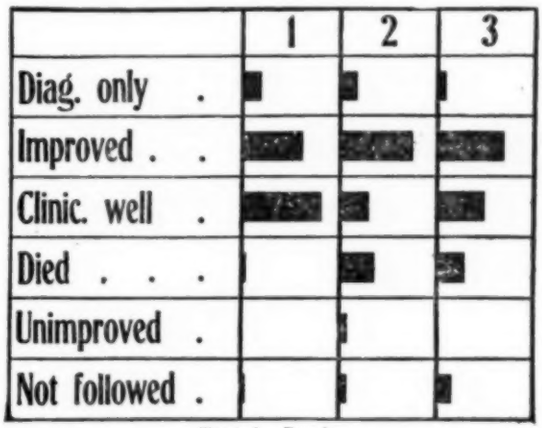

Chart 2.—Results.

TABLE 5.—URINARY FINDINGS

	Groups			
	1. Primary	2. Cardio-vascular	3. Miscellaneous	4. Tuberculous
Specific Gravity:				
High:				
Maximum	1.035	1.030	1.035	1.030
Average	1.017	1.018	1.014	1.016
Low:				
Minimum	1.002	1.004	1.004	1.004
Average	1.012	1.012	1.011	1.014
Albumin:				
Slight	68	66	23	65
Heavy	5	10	2	5
Casts:				
Hyaline	31	35	7	13
Granular	69	73	23	68
Waxy	11	14	3	4
Epithelial	1	2	0	0
Urea:				
High:				
Maximum	51	41	42	31
Average	24	22	19	20
Low:				
Minimum	3	4	7	7
Average	18	15	14	13
Systolic Blood Pressure:				
High:				
Maximum	243	270	190	154
Average	148	180	133	126
Low:				
Minimum	96	108	80	95
Average	134	154	120	120
Average	141	169	127	123

TREATMENT

Treatment will be considered under the following topics: (1) climate; (2) diet; (3) rest and exercise; (4) hydrotherapy, and (5) medicinal.

Climate.—Next to pulmonary tuberculosis, chronic nephritis and convalescence from acute kidney trouble are most benefited by climatic treatment. With that possible exception, no other disease is so favorably influenced by climatic conditions. Surely we are convinced that the conditions in Southern California which our patients have enjoyed have added most to their comfort, relieved their symptoms, and helped to produce good elimination and given longer periods of apparent help. The results, to come later, will speak for themselves. These patients do well near the coast in Southern California, quite as well as in the interior part, because humidity is not so much a factor here as in some other chronic diseases. The warm, equable climate, with little wind and low elevation, is a most important factor. It might be stated, however, that though humidity seems of less importance, these nephritics are in better health during our dry season—from July to January—than during the moist season of the other six months, especially those who have joint, muscular or gouty symptoms.

One of us (W. J. B.)[1] has stated in a former article that it is important that residence in such a climate should extend over a period of one or two years, under medical supervision; but in studying cases for longer periods of time, the conviction is forced upon us that many may remain clinically well in a suitable climate, over an indefinite period of years. There are no apologies to make for the outdoor life given this class of patients in Southern California, anywhere from the coast to 50 miles inland, along the foothill region and outlying valleys which offer low altitude and equable atmospheric conditions.

Diet.—Diet has been an important factor in all cases; but in any of the forms of treatment, individualization has been studied and not alone the disease. The objective findings, such as urine, blood pressure, etc., are considered less than the individual requirements. Some have contended that there is no real difference between the red and white meats for nephritic patients, but experience has shown us that it is best to cut out the red meats from the diet, but not to cut off too much of the protein. Two or three eggs are allowed daily, with plenty of cream, butter, cereals, buttermilk, etc. Fortunately, our patients can have fresh vegetables the year round. Highly spiced and all fried foods, strong cheese and alcohol are to be avoided. It is best to have patients take their water between meals, giving them from six to eight glasses

1. Barlow, W. J.: Hare's Modern Treatment, 1910, i, 158.

in the twenty-four hours, one-third of which should be some alkaline water. One should guard against the excessive use of water.

Rest and Exercise.—This is ordered according to the patient, each one getting two hours of rest on his back in the afternoon. The blood pressure is certainly lowered by rest and light diet. Exercise, of course, is prescribed according to the case.

Hydrotherapy.—This is one of the most important divisions of treatment. Hot baths two or three times a week, in the form of vapor, electric or Turkish baths, followed by massage and rest, give free elimination by the skin and establish a right habit for future elimination, and seem to have a beneficial effect on the bowels. Several patients have had electric cabinets installed in their homes, so that treatment can be carried out regularly for years; where such is not possible, hot baths followed by wrapping in blankets have sufficed. Bowels have been kept active by cooked fruit, fresh vegetables, the coarser cereals and liquid petrolatum.

Medicinal.—Drugs have been used infrequently except where the heart muscle has needed help, or when the amount of urine passed was low. Digitalis for failing compensation, whether the blood pressure is high or low, acts well, and certainly, in these cases, high blood pressure is no counter-indication for its use. Caffein, spartein and strychnin have seemed also very helpful.

RESULTS

The results are studied and tabulated (Chart 2) in the three groups only. The fourth group, occurring secondary to pulmonary tuberculosis, has been omitted, as really belonging to a separate paper, and because the symptoms of nephritis were chiefly dependent on the primary disease. It was found that already too much time had to be given to segregating, classifying and studying results of the three more important groups. Therefore, omitting the sixty-nine cases in Group 4, there remain 181 to be reported on (Tables 6 and 7).

It is to be remembered that these results are given up to the time the patient was last treated, and many have not been followed up to the present time.

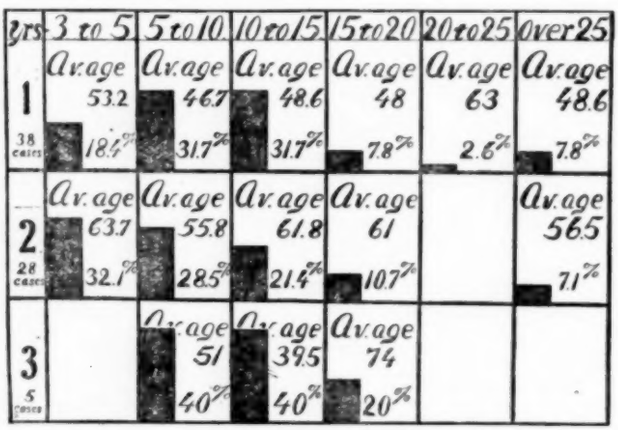

Chart 3.—Duration of disease and average age of seventy-one patients now under observation.

TABLE 6.—DURATION OF OBSERVATION IN ONE HUNDRED AND EIGHTY-ONE CASES

Duration of Observation	No.
Seen once only for diagnosis	17
Not followed after two months	20
From two to six months	28
One year	70
From one to two years	28
From two to five years	41
From five to ten years	14
From ten to fifteen years	11
Sixteen years	1
Eighteen years	1
Groups 1, 2 and 3	181
Group 4	69
Total	250

The statement that so many of these patients have been called clinically well may be attacked, and the answer is that from the clinical standpoint, the patients when last seen had been free from all suggestive symptoms and felt well.

Of the 181 cases tabulated, there are forty-seven, or 26 per cent., still under observation, after three or more years of treatment, grouped as in Table 8.

TABLE 7.—STATUS IN ONE HUNDRED AND EIGHTY-ONE CASES

Condition	Groups 1	2	3	No.
Not followed	1	3	2	6
Unimproved	..	3	..	3
Improved	28	37	10	75
Clinically well	37	14	7	58
Dead	1	17	4	22
Diagnosis only	8	8	1	17
				181
Group 4				69
Total				250

Table 9 shows the duration of time of the whole illness, or the time during the observation of the case plus the history of kidney trouble, in sixty-one cases. Only such cases are taken from our total number as have had trouble over three years.

CONCLUSIONS

1. The prognosis of chronic interstitial nephritis is favorable when patients can be placed under proper conditions.

2. Many cases of so-called interstitial nephritis are not true disease of the kidneys, and often these patients have no return of the abnormal urinary secretion.

3. Patients with chronic interstitial nephritis, with good vascular and cardiac compensation, may live comfortably, and indeed, enjoy good health, for twenty-five or thirty years, and probably longer.

4. Such patients may reach an arrest of the disease, they may be clinically well, and can be classified as apparently cured, quite as surely as in other chronic diseases.[2]

TABLE 8.—GROUPING OF FORTY-SEVEN PATIENTS STILL UNDER OBSERVATION

Observation	Groups 1	2	3	No.
From 3 to 5 years	11	9	4	24
From 5 to 10 years	5	5	1	11
From 10 to 15 years	6	3	1	10
Sixteen years	..	1	..	1
Eighteen years	1	..	..	1

TABLE 9.—DURATION IN SIXTY-ONE CASES

Duration	No.
Under 10 years	25
From 10 to 15 years	25
From 15 to 25 years	7
From 25 to 30 years	3
Thirty-five years	1
Total	61

2. Since the completion of this paper, report has come of the death of one more patient in Group 2.

ABSTRACT OF DISCUSSION

DR. ALEXANDER LAMBERT, New York: There are many conditions grouped under nephritis which do not rightly belong there. Dr. Barlow has shown how markedly different are the conditions and course of the affections due to acute infections or injuries of the kidney and those due to chronic conditions which show arteriosclerosis. The charts show in asthma, for instance, that the dyspnea of acute nephritis is a very different condition from the same symptom in the cardiovascular affections of the kidney. You can secure more improvement in the acute than in the chronic cases. It is curious that if a man lives for from five to fifteen years sick, after standing that strain he will stand a better chance of living for twenty-five years. In the acute affections, if the patient survives he is in a much better condition for recovery than if the blood vessels are injured. The charts are beautiful in a pictorial way. The kidneys are virtually a pair of filters. If they are handed something that injures them, metabolic cobblestones when they are fit to handle only metabolic sand, they cannot handle them and the kidney is injured. One must remember the more specialized the cells the less do they possess general defenses; they are more liable to be injured because of their special character. The great number of the mixed class or the class of vascular sclerotics are the ones that have so much to do with the metabolic changes occurring from the action of the thyroids and the liver. We do not know the cause of the uremic poison and we do not know where the metabolic injury lies, but it is there even when the kidneys are doing their work. There is something back of it all. You may see it in the dry skin, the chippy nails; you may call it gout if you please; it is the same as any hypothyroidism, which may improve when the patient is fed on thyroid. It is a question as to what you can do for these patients. Dr. Barlow has brought out very clearly the fact that their environment influences these patients more than it does the normal individual. No patient is more rapidly injured by little things than nephritics. They do well at equable temperatures where extremes do not occur. They do well if they are willing to exercise self-control both in food and drink, and they do ill if they do the reverse. The ones that have the cardiac troubles and the vascular troubles are the ones doubly struggling against the two injuries, as these charts show. A study of these charts is well worth the time, because they show very clearly the clinical symptoms and the clinical conditions brought before us. We have not solved the problem as to what is behind nephritis. These charts show the prognosis, when it is good and when it is bad.

DR. PHILIP KING BROWN, San Francisco: At the Southern Pacific Hospital in San Francisco a large number of young males enter the hospital for all sorts of diseases and injuries. In a study of the records of the hospital for the last two years, covering six thousand admissions, Dr. Cummins and I have tabulated the cases of albuminuria with casts, separating out as cases of chronic interstitial nephritis those with blood pressure much above normal. We have tried to find out from the comparative study of the etiology and functional kidney tests of the patients who had high blood pressure and could be classed as chronic interstitial nephritis, and those with low blood pressure, what the relation was between these classes among workingmen and the prognosis in each class. Our results differ from Dr. Barlow's, which only emphasizes the point he has made, that if you can surround these patients with the proper environment, mild climate and proper food, with light or no work, life can be much prolonged. In our cases, we find that no working man has lived longer than five years after the diagnosis has been made. This striking difference seems to me to be entirely due to the fact that we have to deal with a lower intelligence, limited means, and it requires greater effort for these individuals to live properly. It has been the routine of the hospital of late to study the Wassermann reaction in every case, and we find the cases of chronic interstitial nephritis in which syphilis is an etiologic factor are very much less amenable to any kind of treatment. Contrary to the accepted law, we administer to such patients considerable quantities of salvarsan, together with other antisyphilitic remedies, without influencing for the better the course of the disease. In established cases of arteriosclerosis, in which the pressure is low, the appearance of an acute infection has impressed us as influencing decidedly the development in the kidney of further interstitial changes. Some of our patients that have entered the hospital with infected wounds, for example, have undergone striking interstitial changes, the blood pressure increasing from normal or less to away over 200. We do not believe that a man with interstitial nephritis can continue his work safely. We have studied our cases with reference to type of labor. Only with clerks and others whose occupation is sedentary can the length of life be prolonged to any extent. Most of us have to do with individuals whose incomes are limited and dependent on their work, and while I believe strongly that bad prognoses are not necessarily to be made, I do feel that for the working man the best therapy is a change of occupation to something quite mild, sedentary if possible.

DR. JOSEPH S. CIPES, Albuquerque, N. M.: Strong as this paper is, I notice that the cases in the fourth series receive little attention. This, I believe, is due to the fact that when we have a patient suffering with pulmonary tuberculosis and we notice a slight edema or a few symptoms of nephritis, we think there is no use trying to do anything for him. A good many cases that are prognosticated in that way, turn out just contrary to the prognosis given by the physician. The bad prognosis given is due largely to negligence or carelessness in making the diagnosis. When nephritis complicates tuberculosis, it is our duty to find out the exact type of the condition. Chronic parenchymatous nephritis, when found complicating pulmonary tuberculosis, usually results fatally. Chronic interstitial nephritis, however, when it follows tuberculosis, is often not fatal. The patient may live a number of years after he has developed an interstitial nephritis. It is a very easy matter to differentiate the two. The differentiation can easily be made by the administration of methylene blue. When administered to a patient in a case of chronic parenchymatous nephritis, the secretion of the methylene blue is usually retarded, whereas in interstitial nephritis it is excreted just as if the patient had no disease of the kidney.

DR. W. JARVIS BARLOW, Los Angeles: I was very glad Dr. Lambert brought out the point of the duration of the disease. If the patients stand the trouble from two to five years or more, they may go on indefinitely under the right supervision and the right care of themselves. I think this is brought out also in what Dr. Philip King Brown said of his statistics of working men. He tells us how very different are their results from those presented here, and to be frank with you I thought our results would be somewhat the same. We were very much surprised to find that our results tabulated as they have. It may be explained by the fact that the cases belong largely to the leisure class, with the opportunity to rest and take care of themselves. They were not among the working class. Perhaps 75 to 80 per cent. were able to settle down and take proper care of themselves. And why should not the results in such cases be better than in the case of the working man?

Progress.—We are gradually acquiring through the natural development of the processes of medical growth a system for the scientific management of disease. The past is full of stimulating traditions; the present, filled with the grains of precious wisdom that have been extracted from the mountains of theory and conjecture; and we accept the truth that in the future what we now worship will be swept away in the melting-pot of scientific ardor. But in admitting our limitations, we affirm with greater confidence our optimisms. It is only when harassed and perplexed that men learn; "strength grows out of weakness."—Everett A. Bates, M.D., *Boston Med. and Surg. Jour.*

PRENATAL CARE

DEDUCTIONS FROM THE STUDY OF THREE THOUSAND FOUR HUNDRED AND SIXTEEN CASES *

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Assistant Attending Obstetrician at the Infirmary for Women and Children
NEW YORK

The infant mortality statistics in the New York Infirmary for Women and Children seem worth publishing at this time when prenatal care is receiving so much attention, partly because we have had a regular prenatal clinic for over twenty years, and also because the results show a gradual general improvement, following increased care and improved facilities in the clinic.

The accompanying table shows statistics of the stillbirths and the deaths, within two weeks, for the last eight years since the rebuilding of the hospital.

MORTALITY STATISTICS FOR THE PAST EIGHT YEARS

Year	Infants Born	Still Births	Per Cent. of Births	Deaths First 14 Days	Per Cent. of Those Born Alive
1907	146	5	3.4	9	6.38
1908	280	12	4.2	10	3.7
1909	357	19	5.3	9	2.6
1910	374	15	4	9	2.5
1911	523	26	4.9	10	2
1912	552	14	2.5	13	2.4
1913	587	20	3.4	11	1.9
1914	597	15	2.5	18	3
	3,416	126	3.6	89	2.7

Total mortality, 215, or 6.3 per cent.

Our total percentage of stillbirths is 3.6 as compared with 4.29 per cent. in Sloane Hospital and 5.22 per cent. in the Universitäts Frauenklinik in Munich (quoted by Holt and Babbitt[1]). The percentage of deaths in the first fourteen days is 2.7 as compared with the 3.1 per cent. in Sloane Hospital. The total mortality of 6.3 per cent. is perhaps not so much of an improvement over Williams' 7 per cent.[2] as our approach to his description of an ideal clinic should warrant. It is, however, a step in the right direction, and the fact that our mortality tends to decrease is encouraging.

The 215 cases were divided as follows:

Abortions (under 37.5 cm. or 1,500 gm.)	32
Premature (37.5 to 46 cm. or 1,500 to 2,500 gm.)	44
Full term (46 cm. or 2,500 gm. or over)	125
Development unrecorded	14

Exclusive of the thirty-two abortions, in thirty-four cases no heart was heard on admission and, of these, twenty-one fetuses were macerated. Thirty-nine of those born alive, or 1.1 per cent., died the first day; 2.1 per cent. (seventy-three) during the first seven days, and 2.7 per cent. during the first two weeks. The causes of early mortality, with the exception of one case in which the necropsy report gave meningitis, did not differ from the cause of stillbirth.

The causes of total mortality are:

Labor (forceps 27; cranitomy 3; rigid cervix 2; breech 13, with 2 impacted; long labor 7; shoulder 1; early induction 2; fibroid of cervix 1; polyp of cervix 1; flat pelvis with version 1; placenta praevia 14; prolapsed cord 12, with 2 pulseless; cord about neck 6; concealed or accidental hemorrhage 3)	93, or 43 per cent.
Syphilis	14, or 6.5 per cent.
Undetermined	28, or 13 per cent.
Deformity	19, or 8.8 per cent.
Prematurity and inanition	20, or 9.3 per cent.
Toxemia	7
Asphyxia	6
Nephritis	5
Atalectasis	3
Cerebral hemorrhage	4
Endocarditis in mother	3
From other causes	13

The other causes were ten in number and were acute hydrammios, with labor induced, 2 twins) pertussis in mother 2, typhoid in mother 1, general infection 1, intra-uterine infection 2, intraventricular hemorrhage 1, meningitis 1, perisplenitis 1, hemorrhages into brain, lungs, liver, etc., 1, edema of the brain 1.

LABOR AS FACTOR

The largest of these groups deserves special mention. The percentage caused by labor, while not unusually large, shows possibilities of reduction. Unfortunately, most of these possibilities occur at the actual time of delivery and not in prenatal care. Here the question of personnel is a large factor, for we have a teaching hospital with a changing house staff. In ten of the cases of prolapsed cord, for instance, judgment and dexterity might have done much to save the fetus. In eleven of the cases of breech extraction, a slight delay or a false movement may have been to blame. Placenta praevia causes a comparatively large infant mortality, as, through fear of infection, we do not undertake cesarean section. The deaths incident to forceps deliveries might possibly have been lowered in private practice, but the figures here given include cases of dystocia from the cervix as well as from the bony pelvis. In some of these, delay may have been a factor through nonobservance of the earliest change in tone or rate of the fetal heart; in others, permission for cesarean section or induction was withheld; but the large majority were borderline cases—either flat pelves with a true conjugate of 8.5 cm. or justominor pelves in which the disproportion did not seem to warrant cesarean section. The question is often one for close consideration.

SYPHILIS

Our percentage from syphilis is comparatively small, 6.5 as compared to Williams' 26.4 per cent. The latter percentage is, however, due to the fact that of the patients composing the Baltimore clinic almost half are colored. Moreover, some patients in our undetermined class of 13 per cent. were probably syphilitic. In any case, making all allowances, it seems positive that treatment has lowered the mortality.

Cases of deformity, monsters, etc., except for the treatment of a possible underlying syphilis, offer no hope of reduction with our present knowledge. Unfortunately, even when syphilis is treated, the time is often too late to correct any embryonic defect.

* Seen in the obstetric service of the New York Infirmary for Women and Children.

1. Holt, L. Emmett, and Babbitt, Ellen C.: Institutional Mortality of the New-Born, A Report on Ten Thousand Consecutive Births at the Sloane Hospital for Women, New York, THE JOURNAL A. M. A., Jan. 23, 1915, p. 287.

2. Williams, J. Whitridge: The Limitations and Possibilities of Prenatal Care Based on the Study of 705 Fetal Deaths Occurring in 10,000 Consecutive Admissions to the Obstetrical Department of the Johns Hopkins Hospital, THE JOURNAL A. M. A., Jan. 9 1915, p. 95.

The cases of prematurity and inanition undoubtedly depend on poor home surroundings of the mother. Five of the twenty cases were twin births and naturally the infants had a poorer chance to survive, but the large factor is probably sociologic and through the clinic the social service is able to help in these cases.

CLINICAL MANAGEMENT

The prenatal clinic, as at present managed, is under the direct supervision of the attending obstetrician. The assistant in the department and the intern follow the cases. Complications, such as tuberculosis, endocarditis, hyperthyroidism, abscess, etc., are looked after in conjunction with the doctors of the other departments of the dispensary, as deemed advisable. We have no prenatal visiting nurses, but the social service cares for patients who seem in need. Medical instructions are given by the doctors.

Patients register at seven months, sometimes at six months; they make bimonthly visits till the end of the eighth month and weekly visits during the last month. Patients not reporting for a period of a month are debarred. The patient's history is taken at the first visit, especially as to history of past diseases, former labors or abortions, and health during present pregnancy. The physical examination, unless otherwise indicated, is obstetric only, consisting of external and internal pelvic measurements and abdominal palpation, mensuration and auscultation. In making the internal examination, the condition of the cervix and perineum is noted and any erosion of the former is treated.

Syphilis is conceded to be the largest single factor in prenatal death, and while we are not able to treat patients in the early months, every registered patient presenting any symptoms or giving any history suspicious of syphilis has a Wassermann examination and if complement fixation be positive, has a course of salvarsan. The history we most commonly get in positive cases is one of abortion, stillbirths, or children dying in early life—often of "infant's consumption."

Furthermore, accurate or at least careful pelvic measurements help to reduce the cases of dystocia, due to the bony pelvis, to a minimum, for while no one's judgment is infallible, early observation allows more intelligent treatment.

Routine urinalyses have enabled us to eliminate toxemia almost entirely, some of the seven cases being early inductions in patients not responding to treatment, others being emergencies. In albuminuria cases, the blood pressure is our main guide and where it remains increasingly high, in spite of eliminative treatment, labor is induced.

Finally, instructions as to personal hygiene and care, we believe, prevent many cases of septicemia and mastitis in mothers, with consequent good effect on the infants.

CONCLUSION

I believe we are repaid for continuing our prenatal clinic and striving to improve it; that it is one of the most important features of the obstetric department; that prenatal care, though it seem thankless, has very definite results, and that it is often by such painstaking attention that we accomplish most.

150 East Thirty-Fifth Street.

OBSERVATIONS ON INCIPIENT HYPERTROPHY OF THE PROSTATE

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The diagnosis of beginning prostatic hypertrophy is not always a simple matter, particularly in the hands of the general practitioner, and occasionally in the hands of the urologist. Especially is one apt to find these diagnostic errors in cases involving the nervous system, in which functional disturbances of the bladder are the prevailing symptoms. Such errors are liable to occur when one fails to remember that spinal cord disease often gives the first evidence of its existence by the development of disturbances in the urinary and sexual functions. In such cases, it is not to be wondered at that errors occur, but there can be no doubt that they can be reduced to a minimum, even to zero, if due precautions are taken.

CASE REPORT

A case of this kind, which occurred in my experience, illustrates this point rather strikingly:

The patient was a man, aged 49, married twelve years, the father of five healthy children. He had been perfectly well up to a year previously, when he noticed a weakening of the urinary stream, an increased frequency in the desire to urinate, and a delay in starting the stream. His family physician made the diagnosis of prostatic hypertrophy, and took him to a urologist for confirmation. The urologist performed a cystoscopy, found a prostatic enlargement, with bladder trabeculations, confirmed the diagnosis, and recommended prostatectomy. The patient, thoroughly alarmed at the prospect of a surgical operation for an ailment which was not giving him much annoyance, determined to seek another opinion, and thus came under my observation.

The patient was still a young man, physically and mentally, and when he stated that he came for the purpose of confirming the diagnosis and approving of the operative suggestion, the first thought was that this was a young man, indeed, to have his prostate removed, hypertrophy notwithstanding. Cystoscopy was not undertaken; I believe that cystoscopy is not necessary in the diagnosis of prostatic hypertrophy, when other diagnostic elements are available. In this particular case, hypertrophy did not appear probable after the following data were obtained: urine clear, residuum three-fourths ounce, urethral length 7½ inches, no nocturnal call to urinate. The prostate was slightly enlarged by rectum; there was no stricture in the urethra.

Physical examination added something useful to these unsatisfactory data. The knee-jerk was totally absent, pupils dilated unequally, slight Romberg present. Further questioning elicited the information that twenty years previously the patient had a penile ulcer, which soon passed away. He received internal treatment of some kind for about a year, but had not taken any since then. Wassermann, four plus.

With this information at hand, I made a diagnosis of incipient tabes dorsalis, and referred the patient to Dr. Joseph Fraenkel, who confirmed the diagnosis, and under whose care the patient has been doing very nicely for the past two years. At the present writing, the patient does not show any evidence of prostatic hypertrophy, except as stated above.

USE OF THE CYSTOSCOPE

This case teaches us several lessons. First, mere enlargement of the prostate as seen with the cystoscope does not necessarily demand immediate prostatectomy. This will be discussed later on. Secondly, the cystoscope, with all its great usefulness, still has its limitations, and one of these, in my opinion, is in the diagnosis of prostatic hypertrophy. I am conservative

enough to rely on the clinical manifestations for the diagnosis of the senile prostate. Given a residuum in the bladder, an increased urethral length, increased desire and frequency, particularly at night, in a man of 50 or over, and the diagnosis is just as certain as any cystoscope can make it. What is objected to is not the use of this invaluable instrument, but its employment as a routine measure in making the diagnosis, when clinical evidence is available.

The literature need not be invoked to confirm the statement that the harm done by the use of the cystoscope in these cases has far more than counterbalanced the good derived by the information which it has furnished. False passages, infections and acute retention are among the sequelae of this practice of employing the cystoscope as a routine measure, in suspected cases of prostatic hypertrophy. Undoubtedly, when the diagnosis is not clear and further enlightenment is desired, the use of the cystoscope is not only permissible, but actually imperative; but the skilful urologist is distinguished by his ability to determine when the use of the cystoscope is merely permissible, and when it is imperative.

The third lesson which this case might teach, if we would learn, is that the physical examination and the serologic test are of the greatest importance in these cases. One might well ask, in this connection, Of what good is the knowledge that the prostate is enlarged intravesically and the bladder trabeculated, when one omits the examination for the knee-jerk, the Romberg, the pupillary reaction and the Wassermann? I think that it is of far greater importance to determine the presence of a spinal lesion and bring it under control, as far as possible, and thereby increase the power behind the urinary stream, than to ignore this possible condition and attempt to relieve the situation by immediate extirpation of the prostate, declared guilty on the sole evidence furnished by the cystoscope.

This brings us to the third point of interest, namely, Should the prostate be removed immediately just because of an enlargement of one or more of its lobes? A search through contemporaneous literature offers very little enlightenment on this question. Writers on prostatic hypertrophy, as a rule, pay more attention to the subject of how to operate than when to operate. Occasionally one finds a vague suggestion that has more or less bearing on this moot point.

From the purely academic and theoretical point of view, it would appear that every prostate showing an enlargement into the urethra or bladder ought to be removed without delay, for surely it will have to be accounted for at some later date, when the patient's general condition may not be so good as when the enlargement is first discovered. On the other hand, when one considers the risk to life attached to the operation, and the frequent unhappy sequelae after operative recovery, one feels that there ought to be something more than mere enlargement to justify so formidable an operation as prostatectomy. In the ultimate analysis, this question is decided, each case on its own merits, by the surgeon and the family physician, for the question of operation must be determined in every case on the existing conditions that call for relief.

So much has been said and written optimistically on the subject of prostatectomy that the general practitioner is apt to consider the operation rather lightly, and urge its performance as soon as the patient makes complaint of his urinary disturbances.

I feel rather keenly in this matter, because of my observations on the results attained after removal of the prostate. I have under treatment, at present, a man, aged 51, who had his prostate removed by an excellent surgeon three years ago, at the age of 48, by the perineal route. At that time, for six months previously he had been complaining of increased frequency of urination and slowness of the stream. He had 1 ounce of residuum, and voided once during the night. Operation was advised and accepted, with the result that the man has become totally impotent and has absolute incontinence of urine, being incapacitated for business because of the persistent odor of urine about his person, and his life has been made miserable generally. In all other respects he is still a fairly young, healthy man, with not a gray hair on his head.

It would appear to have been wiser to give this man an opportunity to rid himself of his symptoms in some manner other than by radical operation so early in life. Prostatectomy is inherently a procedure that should be adopted when other measures fail to afford relief. It is not the first remedy to think of, but the last. When it is clear that palliative measures will not offer relief, prostatectomy is the only remedy that can be advised.

It must not be assumed for a moment that I am advocating the adoption of a catheter life as a prelude to prostatectomy. To the contrary, the permanent use of the catheter for the emptying of the bladder is an anomaly in these days of progressive surgery. Indeed, I am firm in the conviction that the time for prostatectomy has arrived as soon as the catheter has become necessary for emptying the bladder. But that does not mean that prostatectomy is demanded the moment an enlarged prostatic lobe has been discovered. It simply means that prostatectomy is demanded and made necessary when it is seen that the bladder is incapable of emptying itself of its contents. In other words, the indication for operation is not found in the enlarged prostate per se, but in the disturbance of function which such enlargement produces. Surely a man with a prostate as large as a fist is no worse off than his neighbor with a normal prostate, so long as he empties the bladder of its contents and thereby prevents the accumulation of residual urine. Why not give the incipient hypertrophied prostate a chance? We have all seen instances innumerable in elderly men, in which the prostate is large without any or only a slight disturbance in the urinary function. In these cases, the bladder wall is hypertrophied and has become so in response to the increased obstruction at the vesical neck. But if such a bladder empties itself with reasonable satisfaction, it would seem only proper to conserve the prostate and encourage the bladder to continue its work.

This is a very important matter, and deserves greater consideration than it usually receives. It is a problem worthy of our best thought. For several years I have been working along these lines, and I am convinced that prostatectomy might be avoided in many instances, if proper attention is paid to improving the condition of the bladder and the prostate.

At Beth Israel Hospital and in private practice, we have had a large number of incipient prostatics, as they might be termed, who have been treated with the view of increasing the bladder function and thereby

counteracting the obstructive tendency of the enlarged prostate. It has been found that in many cases the prostate reaches a certain stage in the hypertrophic process, and then comes to a standstill. In these cases, there may be an ounce or two of residual urine, the urethral length may be one-half inch longer than normal, and the cystoscope may reveal a decided prostatic enlargement, and possibly some trabeculation of the bladder mucosa. But the patient is in a fairly comfortable condition, arising at night once or probably twice to void urine. Patients have gone on this way for five or six years, and sometimes longer, without any increase in the obstructive symptoms, and consequently without any urgent necessity of removing the prostate.

If at any time the obstructive symptoms become more persistent and urgent, prostatectomy is advised as the only means at our command which will restore the urinary function as nearly as possible to its previous condition. But so long as the patient can be kept in reasonable comfort without resorting to the catheter life, operation is not recommended.

TREATMENT

Our treatment includes the administration of a urinary antiseptic, keeping the bowels open, abstinence from alcoholic and sexual excesses, emptying, and irrigating and stretching the bladder once or twice weekly. We find that stretching the bladder gently by filling it to its maximum capacity is of great value, as it stimulates the bladder walls, very much in the nature of massage, thereby maintaining its ability to meet for a long time the increasing demands made on it by the obstructing prostate. Alcoholic and sexual temperance are of great importance in this connection, for we have found that an unusual indulgence will often bring about a sudden increase in the obstructive symptoms. Moderation in all things is the watchword for the incipient prostatic.

CONCLUSIONS

The urinary symptoms associated with incipient prostatic hypertrophy are liable to be confused with functional disturbances of the bladder due to central nerve lesions, such as tabes dorsalis. Every patient with suspected prostatic hypertrophy should be carefully examined for evidence of spinal cord disease. The Wassermann test and the physical examination will often indicate that the urinary disturbances are due to central nerve disease, rather than to prostatic obstruction. The cystoscope is not to be used in the diagnosis of prostatic hypertrophy, unless the clinical data are insufficient. While the cystoscope is usually a perfectly safe instrument in the hands of the expert, it is potentially capable of doing much damage. The diagnosis of hypertrophy should be made on the clinical findings. Prostatectomy should be undertaken as a last resort, and not as a routine procedure. The bladder should be given an opportunity to compensate for the obstruction of the enlarged prostate. This can be encouraged by the application of hygienic measures tending to prevent congestion of the prostate and bladder. Massage of the bladder walls, by gently filling the bladder to its capacity, is extremely useful in stimulating compensatory hypertrophy. Prostatectomy is demanded as soon as a catheter is required to keep the patient in comfort.

113 East Nineteenth Street.

EXPERIENCES WITH THE SODIUM CITRATE METHOD OF INDIRECT TRANSFUSION OF BLOOD (LEWISOHN)

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During the last few years, attempts have been made by numerous workers to discard the direct method of transfusion by suture or cannula (Crile, Elsberg, Bernheim, Carrel) and to replace it by the indirect method on account of: (1) the technical difficulties in the former methods; (2) the time consumed in transfusing, which of course weighed heavily on surgeons, donor and recipient; (3) the impossibility of accurately estimating the amount of blood received by the recipient, and (4) the difficulty, at times encountered, in maintaining the flow of blood for a sufficient length of time, because of the occurrence of thrombosis in the donor's artery, notwithstanding excellent technic.

These attempts at improvement resulted in the indirect transfusion, performed by two groups of methods:

1. Those in which the blood was removed from the donor and transfused hastily into the recipient in small amounts repeatedly until sufficient blood had been transfused. This was done either intermittently (Lindemann) or continuously (Unger) by the syringe method, or by the use of larger paraffined vessels (Curtis, Kimpton). Haste was required in order to prevent coagulation.

2. Those in which substances such as herudin (Hooker, Satterlee), or more recently sodium citrate (Lewisohn), were mixed with the blood to prevent coagulation.

The last-named method would seem to be ideal, because it allows the use of a cheap, easily sterilizable fluid (2 per cent. sodium citrate); the blood remains fluid indefinitely, and can be transported; the amount obtained and transfused can be measured, and the transfusion becomes simplified to an infusion given with a glass infusion bottle and salvarsan needle or infusion cannula. Theoretically, however, there are objections to the method, because it adds something to the blood which is not normally present, it allows the blood to stand in the air outside the body for a certain length of time, and it allows the blood, a tissue which is normally in contact only with endothelium, to come in contact with foreign bodies (glass, rubber and metal). These objections do not pertain in direct transfusion (for example, the Crile method). Whether or not these objections are really valid remains for the future to show. The mortality statistics will decide this.

At any rate, Richard Lewisohn[1] reported twenty-two citrate transfusions on eighteen patients. These patients were transfused with amounts of blood varying between 150 c.c. in children and from 500 to 1,000 c.c. in adults. In no case was any fatality recorded, although they were most desperate cases.

It is the chief purpose of this communication to record the results obtained in three transfusions performed by the Lewisohn citrate method. It is interesting that in this small group we can compare in two of the cases the results of the citrate indirect method and the Crile direct method, as one of them had a citrate followed by a Crile transfusion and the other a Crile followed by a citrate transfusion.

1. Lewisohn, Richard: Surg., Gynec. and Obst., 1915, xxi, 37.

CASE 1.—G. D., laborer, seen in consultation with Dr. Francisco, March 12, 1915, had been having painless passages of black blood from the bowel for four or five days. The hemoglobin was 25 per cent. Examination revealed general neurofibromatosis of the skin (von Recklinghausen's disease), no fever and epigastric tenderness. A clinical diagnosis of duodenal ulcer was made. Two days previously, the patient had been transfused with 375 c.c. of citrated blood by Dr. Francisco. After receiving 200 c.c. of blood, the patient became nauseated, retched, his face assumed a drawn expression, cold sweat appeared, and the pulse became thready. He rapidly recovered, and the transfusion was completed. One hour later he went into profound shock, from which he recovered in two hours, and voided claret-colored urine with relief. He was removed to Trinity Hospital, a donor was procured, and I performed a Crile direct transfusion, raising the hemoglobin from 25 to 55 per cent. The duration of the operation was four hours. The patient, previously almost moribund, became quite conscious, and talked logically.

Exploratory laparotomy by Dr. Sharber, one hour later, through an upper median abdominal incision, revealed the stomach and duodenum negative for ulcer. On the anterior aspect of the second part of the duodenum was a firm subperitoneal mass the size of a small olive. It was easily enucleated and the peritoneal rent closed. In the lower part of the ileum, about 1 foot from the ileocecal valve, was another slightly larger subperitoneal mass, situated on the peripheral aspect of the intestines. It was treated in a manner similar to the former tumor. The rest of the abdomen was explored but found negative. In the removal of neither tumor was it necessary to enter the lumen of the intestine.

The patient seemed in good condition the next morning, and had 43 per cent. of hemoglobin, but died at 11 a. m. No claret-colored urine had been voided. According to the pathologic report, the tumor of the ileum was a fibromyoma; and that of the duodenum a fibromyosarcoma. No nerve fibers were shown in Weigert preparations.

Apparently the direct transfusion was successful in this case, while the indirect was not only unsuccessful, but also accompanied by almost fatal shock.

CASE 2.—Mrs. J. C. P., seen at Trinity Hospital in consultation with Drs. Sharber and Rieger, was anemic, owing to the bleeding of a fibroid uterus. The hemoglobin was 38 per cent. On this patient, July 13, 1915, I performed a transfusion by the citrate method with 500 c.c. of citrated blood obtained from her husband, whose hemoglobin was 100 per cent. The duration of the operation was fifty-five minutes. The hemoglobin of the recipient rose at once to 58 per cent. One hour later moderate shock followed, but was easily combated, and the temperature rose to 102.6. The next day after purgation and preparation for operation, the hemoglobin was 75 per cent. None had appeared in the urine (by the guaiac test). A supravaginal hysterectomy and bilateral salpingo-oophorectomy was performed. The hemoglobin twelve hours after operation was 60 per cent.

Aside from the combatable shock, the citrate transfusion was unusually successful.

CASE 3.—W. W., woman, was admitted to the hospital July 1, with symptoms of sudden intra-abdominal hemorrhage. When seen there in consultation with Dr. C. R. Sharp, the symptoms had somewhat abated. July 3 the hemoglobin was 60 per cent. An indefinite mass was felt in Douglas' culdesac. Menstruation had been irregular. A clinical diagnosis of ectopic gestation with intra-abdominal hemorrhage was made.

The patient was comfortable until the morning of July 5, when she again had signs of hemorrhage. Dr. Sharp performed a laparotomy for ectopic gestation; the right tube and ovary were removed; the patient received two intravenous saline infusions on the operating table, and was removed to the ward in a critical condition. The hemoglobin was 43 per cent. Within two hours I performed a Crile direct transfusion, using the patient's son as donor, and raising the hemoglobin to 51 per cent. The duration of the transfusion was two and one-half hours. No claret-colored urine was voided. The patient apparently did well for one week, but for the next few days had been looking ill. July 16 the hemoglobin was 52 per cent. A citrate transfusion was done with the same donor as before and the same flasks of citrate and saline that had been used in Case 2. Three hundred and fifty c.c. of blood were drawn. As soon as 100 c.c. had run in, the patient became restless and cyanotic, and the pupils dilated widely. She recovered from this, and 100 c.c. more were allowed to run in when she collapsed completely; her mouth twitched, the pupils dilated, the pulse and heart sounds became imperceptible, and cyanosis ensued. The transfusion was stopped. The hemoglobin had risen to 62 per cent. She was given extreme stimulation, but ceased at the end of six hours.

Both the 2 per cent. sodium citrate and the 0.9 per cent. sodium chlorid solutions were made of freshly distilled water and autoclaved at once at 20 pounds' pressure for thirty minutes.

These case reports show that we are not yet in a position to discard the direct for the indirect transfusion. In spite of the difficulties in technic attending the former, I believe it would be better to obtain the services of one skilled in arterial surgery and eliminate such a percentage of reactions (shock) as 100 per cent., and of mortality as 33⅓ per cent. There is no reason to believe that hemoglobinuria may not occur with either type of transfusion with equal frequency; in Case 1 it was responsible for the failure of the citrate method, although neither hemolysis nor agglutination occurred in vitro (Dr. Francisco). Having had an experience of a large number of direct transfusions, I can say that shock is a negligible factor, that infarction occasionally occurs (lung, kidney), and that hemoglobinuria is quite common and can occur even when the tests in vitro are negative.

I have seen tremendous reactions occur after transfusion of cases of bacteremia, possibly due to bacteriolysis. But a fatality in a case of secondary anemia, following direct transfusion by any method whatsoever, I have never yet witnessed.

Therefore, I would heartily condemn any indirect method that depends on the addition of some substance, such as sodium citrate, which will prevent the coagulation of the blood to be transfused.

178 Eighth Avenue North.

American Hospital at Chefoo.—The hospital of the American Presbyterian Mission at Chefoo, China, was completed in the summer of 1914 and is said to rank with the best hospitals in the larger cities of China. It is described by A. Krisel, a student at the mission, in U. S. Commerce Reports. It is situated on a hill overlooking the harbor of Chefoo and has grounds which cover 4 acres enclosed by a high stone wall. The buildings consist of the hospital, a dispensary, isolation wards for men and women, a morgue and a water pumping plant. The total cost of the hospital, including the equipment, was about $50,000 gold. It is built of brick and stone and is three stories high. It measures 160 by 128 feet and there are 8 ward rooms and 8 private rooms with a total of 35 beds; the capacity can be increased to 50 beds, accommodating about 400 patients in the year. The hospital building is heated by a low pressure steam plant and has electric lights. A Roentgen-ray apparatus has been purchased in the United States. Water is secured from a bored well 200 feet deep; wastes are disposed of by the septic tank system. The hospital had, at the time of the report, two foreign and one Chinese physicians, one foreign and one Chinese female nurses and eight Chinese male nurses. It was then running at about one third its capacity.

STUDIES ON THE LOCALIZATION OF CEREBELLAR TUMORS

III. POSTERIOR NEW GROWTHS WITHOUT NYSTAGMUS *

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INTRODUCTION

The purpose of this study has been to determine the proportion of patients with certified subtentorial new growths who have shown no nystagmus previous to operative treatment.

Practically all authorities agree that nystagmus is a valuable localizing sign in diseases of the posterior cranial fossa. To this category belong especially lesions of the cerebellum, the cerebellar peduncles, the vestibular nerves, the neighboring nuclei and the labyrinths. When general pressure symptoms suggest the presence of a tumor, nystagmus assumes more importance still, for it is recognized that the occurrence of this sign in a patient with symptoms of subtentorial new growth argues in favor of an extracerebellar or intracerebellar neoplasm. Stewart and Holmes[1] hold that this sign is almost invariably present in every case of cerebellar tumor at one or another time.

Occasionally, however, in patients of this type no discernible rhythmic movements of the eyes are found on repeated investigation. Though frequently other features of the examination suffice for purposes of diagnosis,[2, 3] there are instances in which the localization of an intracranial tumor in the posterior fossa is a very difficult problem.

A case in point recently came to my attention (table, 2320). The patient was examined repeatedly and by different observers, but no suggestion of nystagmus ever was noted. The picture as a whole was quite obscure. A tentative diagnosis of subtentorial tumor finally was made from the rapid onset of pressure signs (advanced choked disks, areas of absorption and enlarged venous channels in the roentgenograms, etc.) and the history of some disturbances in gait. There were no further significant localizing signs. Operation disclosed a solitary, median tubercle of the cerebellum measuring approximately 3 cm. in diameter.

When confronted with problems of this sort it is a matter of some importance to know the relative proportion of patients with certified cerebellar tumors who show no nystagmus previous to operative treatment. With information of this nature conclusions may more easily be drawn regarding the advisability of suboccipital exploration.

The records used in this analysis are from patients with tumors in the posterior fossa who have appeared in the neurologic services of Dr. Cushing at the Johns Hopkins Hospital previous to September, 1912, and at the Peter Bent Brigham Hospital since that date. Most of the cases in the latter group were personally studied by me. Of several hundred such cases only those—fifty-one in number—in which the new growths were localized at operation or at necropsy have been used for this report. In addition, for purposes of comparison, the records of forty-one patients from the latter clinic with verified supratentorial tumors have been analyzed for the presence or absence of nystagmus.

Practically all of the patients were studied by more than one observer. This method of checking up the routine examinations is significant, particularly for the patients reported as showing no nystagmus.

As Wilson and Pike[4] have pointed out, the word "nystagmus," in its present usage, is an indefinite term covering various types of ocular movements arising from lesions in diverse parts of the nervous system. Though these have been frequently differentiated into several distinct types, English writers have generally applied the term to oscillations of the eyes without distinction in regard to the variety of the movements. In this analysis no patient has been classified in the group without nystagmus if jerks were discovered at any time exceeding physiologic limits.

CASES OF CEREBELLAR TUMORS WITHOUT NYSTAGMUS

Of fifty-one cases of verified subtentorial new growths, there were eleven in which no nystagmus was discernible previous to operation. Nystagmus was absent in one additional case on repeated examination up to the day of exploration (table, 357). For purposes of comparison these are presented in the accompanying table.

The lesion concerned in eight of the cases was a glioma or a gliomatous cyst. In three there were tuberculomas, two being solitary. As regards the site of the new growths, it is seen from the table that they involved practically all portions of the cerebellum. Either the right or left hemisphere was affected as a whole or in part in six cases. The tenth and eleventh patients showed an involvement of both the vermis and an entire hemisphere. In the twelfth the lesion affected the deeper, anterior portion of the vermis and the right lobe. It is noteworthy that in no instance was the cerebellopontine angle primarily involved.

The degree of intracranial pressure varied widely among these patients. From a case with no measurable swelling of the optic nerve head and only moderate tension at operation, the pressure ranged to one with advanced choked disk and extreme herniation of the cerebellum into the spinal canal.

Accessory measures for eliciting nystagmus were tried in three of the patients—moving the head as first suggested by Oppenheim,[5] and using opaque spectacles as recommended by Bárány.[6] No success attended any of these tests.

The importance of making repeated observations is well shown by Case 357, in which a fine nystagmus finally appeared just previous to the operation.

The records of two patients illustrate how nystagmus which has been absent during one period of study may appear in later examinations subsequent to a suboccipital operation. Patient 30,000 on the second admission and Patient 357 on the second and third admissions had characteristic rhythmic movements of the eyes.

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* From the Surgical Clinic of the Peter Bent Brigham Hospital, Boston.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

1. Stewart and Holmes: Symptomatology of Cerebellar Tumors, Brain, 1904, xxvii, 522.

2. Grey: Studies on the Localization of Cerebellar Tumors: I. Staggering Gait, Limb Ataxia, The Romberg Test and Adiadococinesia, Jour. Nerv. and Ment. Dis., to be published.

3. Grey: On Localization of Function in the Canine Cerebellum, Jour. Nerv. and Ment. Dis., to be published.

4. Wilson and Pike: The Mechanism of Labyrinthine Nystagmus and Its Modification by Lesions in the Cerebellum and Cerebrum, Arch. Int. Med., January, 1915, p. 31.

5. Oppenheim: The Influence of the Position of the Head on Cerebral Symptoms, Neurol. Centralbl., 1910, xxix, 114.

6. Barany: Functional Examination of the Vestibular Apparatus, Verhandl. deutsch. otol. Gesellsch., 1911, xx, 37.

CASES OF CEREBELLAR TUMORS AND NO NYSTAGMUS

Patient	Lesion	Intracranial Pressure	Tinnitus and Hearing	Dizziness	Eye Muscles	Caloric Test	Nystagmus
2320 ♂ 22	Tuberculoma involving vermis principally; rt. hemisphere slightly. (Operation.) Tumor about 3 cm. in diameter.	Choked disks 4-5 D. Marked tension at operation. Extreme herniation of cerebellum into spinal canal. Int. hydrocephalus.	No tinnitus. Hearing good. Slightly less acute rt. ear.	Some. No rotation of objects or self.	No strabismus. Conjugate deviations good. Very slight restriction toward pt's. left.	Definite nystagmus from irrigation either ear. More marked from left. Normal pointing reactions. Reaction movements from both sides.	None with eyes directed forward, to either side, up and down, on changing position of and shaking head, or on breaking fixation.
1406 ♂ 45	Tuberculoma of left hemisphere. (Necropsy.) Tumor about 3 by 2.5 by 2 cm.	Choked disks 6-7 D. Marked tension at operation. Herniation into spinal canal.	No tinnitus. Hearing less acute in left ear.	None	No strabismus. Conjugate deviations good.		None with eyes directed forward, to either side, or up and down.
320 ♀ 6½	Glioma involving vermis and medial portion of each hemisphere. (Operation and necropsy.) Tumor 4.5 by 3.2 cm.	Advanced choked disks. Marked cerebellar herniation into spinal canal. Int. hydrocephalus. Pons and medulla distorted.	No tinnitus. Hearing normal.	None	No strabismus. Conjugate deviations good.		None with eyes directed forward, to either side, or up and down.
27788 ♂ 41	Cyst involving left hemisphere principally. (Operation.) Cavity about 5 by 4 by 4 cm.	Choked disks. Moderate tension of dura and cerebellum at operation.	No tinnitus. Hearing normal.	(?)	Slight weakness left internal rectus.	Definite nystagmus from irrigation either ear. Normal vestibular response, both sides.	None with eyes directed forward, up and down, or to the right. A few atypical jerks on looking to the left.
1444 ♂ 43	Multiple small tuberculomas involving vermis and left hemisphere. (Necropsy.) Largest 1 cm. in diameter.	Early choked disks 1 D. Moderate tension at operation. Probably slight int. hydrocephalus.	No tinnitus. Hearing about normal.	Marked dizziness. No rotation of objects or self.	No diplopia or strabismus. Some weakness left ext. rectus (?).	Marked nystagmus within very short time from irrigation either ear. Normal pointing reactions and reaction movements.	In two examinations atypical jerks of brief duration appeared only when looking to either side. Subsequently no jerks or nystagmus on directing eyes ahead, to the sides, and up and down. None on moving head and on breaking fixation.
1642 ♀ 64	Cyst (gliomatous ?) involving rt. hemisphere principally. (Operation.)	Very early changes in eye-grounds. Hyperemic. No elevation. Moderate tension at operation.	No tinnitus. Hearing normal.	Marked. No rotation of objects or self.	No diplopia or strabismus. Conjugate deviations good.	Marked nystagmus within very short time from irrigation either ear. Normal pointing reactions and reaction movements.	None with eyes directed forward, to either side, up and down, on moving head, or on breaking fixation.
51 ♂ 8	Cyst (gliomatous ?) involving rt. hemisphere principally. (Operation.) 42 c.c. fluid from cyst.	Choked disks with secondary atrophy. Int. hydrocephalus marked. Separation sutures. Marked tension at operation. Great herniation into spinal canal.	No tinnitus. Hearing normal.	None (?).....	Some diplopia. No strabismus. Conjugate deviations good.		None with eyes directed forward, to either side, or up and down.
107 ♀ 3½	Cyst (gliomatous) involving rt. hemisphere principally, also vermis. Includes nearly whole rt. hemisphere. (Operation.)	Early choked disks. Marked int. hydrocephalus. Great herniation into spinal canal.	Tinnitus (?). Hearing about normal.	(?)	No diplopia or strabismus. Conjugate deviations good.		None with eyes directed forward, to either side, or up and down.
30000 ♀ 6	Large cyst (gliomatous) occupying left hemisphere principally. (Operation.)	Choked disks 5-6 D. Int. hydrocephalus. Marked herniation into spinal canal.	No tinnitus. Hearing less acute in rt. ear.	None (?).....	Paralysis left abducens. Very slight weakness rt. abducens (?).		None with eyes directed forward, to either side, or up and down.
357 ♂ 36	Glioma involving anterior portions, rt. hemisphere and vermis. (Operation.)	Choked disks 5 D. Marked tension at operation. Herniation into spinal canal.	Some tinnitus each ear. Hearing normal.	Fairly marked. No rotation of objects or self.	History of diplopia. No strabismus. Conjugate deviations good.	Slight nystag. from rt. ear; marked from left. Reaction movements only from left ear. Pointing errors to right both arms.	None with eyes turned in all directions on numerous examinations. Just previous to operation a fine, indefinite nystagmus appeared on looking to either side.
151 ♀ 9	Large cystic glioma involving rt. hemisphere principally, also vermis. (Operation.)	Advanced secondary optic atrophy. No elevation. Hydrocephalic configuration of skull. Marked pressure at operation. Int. hydrocephalus.	No tinnitus. Hearing normal.	None	No diplopia. No strabismus. Conjugate deviations good.		None with eyes directed forward, upward, or to her right. Some atypical coarse jerks on looking toward her left.
26387 ♀ 37	Cystic glioma involving left hemisphere principally. (Operation.)	Choked disk. Moderate tension at operation. Int. hydrocephalus.	Considerable tinnitus rt. ear. Later left ear. Hearing normal.	Some	No diplopia. No strabismus. Conjugate deviations good.	No nystagmus provoked on irrigating either ear. No subjective distress.	None with eyes turned in all directions.

Two of the patients complained of tinnitus and three showed a slight homolateral reduction of air conduction. These complications had appeared during the present illness in each case. Functional tests, however, disclosed no serious impairment of the eighth nerve in any instance.

CASES OF CEREBELLAR AND EXTRACEREBELLAR TUMORS WITH NYSTAGMUS

While tumors may arise in every possible position in the posterior fossa, it is convenient for purposes of localization and surgical treatment to consider them as occupying four principal regions, two within and two external to the cerebellum. In regard to the former we may speak, first, of the tumors which occupy a central position, that is, those which involve the vermis and more or less of the median portion of each lateral lobe; and, second, of those which lie wholly within one or the other hemisphere. In reference to the latter we may look on the new growths either as occupying the cerebellopontine angle, or as lying more or less between the posterior portions of the lateral lobes, dorsalward from the medulla and vermis.

There were thirty-nine verified cases of tumors occupying one or the other of these regions in which nystagmus was present previous to operative treatment. In twenty-two the new growths were intracerebellar; ten occupied a median position, while eleven lay in one lateral lobe. In one there were gliomatous cysts in both hemispheres. The size of the new growths varied greatly, from lesions with a diameter of a few centimeters to growths which replaced most of the cerebellum. An extracerebellar tumor was found in each of seventeen patients. Of these tumors thirteen occupied a unilateral cerebellopontine site and three a posterior, median position. In one additional case an infiltrating glioma of the vermis lay partially exposed in the posterior, median sulcus.

The degree of intracranial pressure in this group was found to vary within wide limits. In several instances the eye-grounds appeared to be practically normal. Operation disclosed only a moderate tension of the suboccipital structures. In the balance of the cases, on the other hand, the changes in the optic nerve-head varied from a few diopters swelling to an advanced choking of the disk. A number of the patients showed marked secondary atrophy. At operation corresponding differences were noted in the degree of internal hydrocephalus.

The experiences with the caloric test and the pointing reaction (Bárány) in these patients have been discussed in another place.[7]

THE PRESENCE AND ABSENCE OF NYSTAGMUS IN CASES OF TUMORS LYING ANTERIOR TO THE CEREBELLUM

Nystagmus is sometimes found in patients with new growths lying anterior to the cerebellum. As its presence here is always confusing, this has somewhat limited its usefulness as a sign of disease in the posterior fossa. The types of nystagmus in the two classes (that is, patients with tumors lying anterior to the cerebellum and those with cerebellar or extracerebellar growths) are occasionally identical. In each the movements may be fine and inconspicuous or they may appear as coarse, well-marked jerks. It is frequently impossible, even, to recognize the variety arising from direct irritation in the labyrinth; for, as Friesner and Braun[8] have pointed out, despite much that has been said to the contrary, the nystagmus due to cerebellar disease often cannot be differentiated clinically from that due to labyrinthine disease. Our experience has been that on the average the movements are coarser and more marked in individuals with lesions situated below the tentorium.

The fact that no nystagmus was noted in fully one third of the cases of intracerebellar new growths suggested a similar analysis of the cases with verified lesions lying anterior to the cerebellum in order to determine the relative frequency of this sign in the latter group.

Of forty patients with tumors situated anterior to the cerebellum, eight showed characteristic rhythmic oscillations of the eyes previous to any surgical interference. The new growths and their locations were as follows: one glioma, right occipital lobe; one glioma, right thalamus principally; one gumma, left temporal lobe; two cases of gliomatous cyst, one right and one left, parietal lobes; one solitary tubercle and one glioma, pons; and one hypophysial cyst.

The caloric test was used on three of the patients—occipital lobe glioma, thalamic glioma, and pontine tubercle. In each a typical nystagmus appeared following the irrigation of either ear.

There were thirty-two individuals in whom no nystagmus was detected; one gumma and one glioma, left frontal lobe; one gliomatous cyst, right frontal lobe; one endothelioma, pons; one glioma, left thalamus; two cases with a glioma each, and two with an endothelioma each, right parietal lobe; one glioma, left parietal lobe; two patients with a glioma each, and one with a gumma, left temporal lobe; one gliomatous cyst, one glioma, and one endothelioma, right temporal lobe; one glioma involving both thalami, right principally; one endothelioma, right temporoparietal region; one endothelioma at the foramen magnum; one metastatic melanotic sarcoma—multiple in cerebrum and cerebellum; and eleven patients with hypophysial strumas or cysts.

Seven of the patients were examined with the caloric test. Typical nystagmus appeared following the irrigation of each ear in six of these: unilateral thalamic glioma, frontal gumma, bilateral thalamic glioma, temporal endothelioma, endothelioma at foramen magnum, and parietal endothelioma. In the seventh—a pontine endothelioma—there was no response from either labyrinth. An involvement of the third, fourth and sixth nerve nuclei probably was largely responsible for this, as voluntary conjugate deviation of the eyes was practically impossible in all directions.

A study of the eye-grounds showed no uniformity in the ophthalmoscopic pictures. The changes in the nerve-head varied in both classes of cases (patients with and patients without nystagmus) from fundi with no measurable elevation to advanced choked disk. A similar variation was pointed out in discussing the cases of intracerebellar new growths (table, column 4).

DISCUSSION

In seeking an explanation for the presence or absence of nystagmus in patients of this class it is necessary to consider briefly the present conceptions

7. Grey: Studies on the Localization of Cerebellar Tumors: II. The Pointing Reaction and the Caloric Test, Am. Jour. Med. Sc., 1915, to be published.

8. Friesner and Braun: The Functional Tests of the Static Labyrinth in Neurological Diagnosis, New York Med. Jour., 1914, c, 369.

regarding the mechanism of nystagmus. These, unfortunately are somewhat discordant. Bauer and Leidler[9] believe from their experiments on animals that nystagmus appears as a result of lesions in the region of Deiters' nucleus—the horizontal jerks more from the ventrocaudal part, and the vertical jerks from the oral part. In a similar way Bárány[10] assumes a nystagmus center here and explains the presence of this and certain other so-called cerebellar signs as the result of increased tension in the posterior fossa. Tumors in any location, as soon as they exert pressure on the posterior fossa, may give rise to an intracranial type of nystagmus, which may be transitory and of varying intensity or permanent and of constant intensity. Hesse,[11] however, questions whether we are justified at present in attributing such signs to the distant effects (*Fernwirkung*) of space-consuming new growths in the large and small brain.

Wilson and Pike,[4] on the other hand, do not subscribe to this or to the various other hypotheses which recognize a nystagmus center. They conclude that an agency somewhere produces a deviation of the eyes from the primary position of equilibrium. In labyrinthine nystagmus this agency lies in the labyrinth. The internal rectus muscle on the side of the slow deviation and the external rectus on the side opposite are subjected to a greater strain than usual. This strain, resulting in the stimulation of the sensory or afferent endings of the eye muscles, sets up afferent impulses which are conveyed to the cerebrum over the afferent fibers in the third, fourth, and sixth cranial nerves.[12] These afferent impulses, in their turn, set up efferent impulses in the oculomotor cells of the cerebrum, which result in a quick, jerky contraction of the internal rectus on the side of the slow deviation and of the external rectus of the opposite side, with relaxation of the antagonistic muscles. The effect is a restoration of the eyes to the primary position. The complex motor mechanism of the eyes, these authors conclude, cannot be described in terms of circumscribed isolated centers, but must be defined in terms of an integrative system.

Mills and Weisenburg[13] regard the nystagmus seen with cerebellar lesions as due to an involvement of the vestibulocerebellar apparatus, probably of the parts connecting the vestibular nuclei with the deep nuclei of the cerebellum.

We are acquainted with the agency connected with the labyrinthine type of nystagmus of which Wilson and Pike speak, but as yet are more or less unfamiliar with that responsible for the development of nystagmus from other portions of the brain. Just what relation the cerebellum bears to the development of rhythmic movements of the eyes is at present rather uncertain. The cerebellum, it appears, has no pathways or centers indispensable for the appearance of either the slow or the quick component. From the investigations of Bauer and Leidler[9] it is clear that while destruction of parts of the cerebellar hemisphere and vermis never causes spontaneous nystagmus, lesions of the latter, nevertheless, result in an excessive excitability of the vestibular nuclei. This has led these workers, with Bárány, Neuman and others, to the belief that in cerebellar disease the nystagmus is due to an alteration in function of the vestibular nuclei or their connections with the nuclei of the eye muscles through pressure.

Oppenheim,[14] with Bruce, Wallenberg, Adler, Probst, Babinski, Horsley and others, assumes a nystagmus of cerebellar origin. Horsley,[15] for example, has shown that a careful electrical stimulation of the white matter in the neighborhood of the dentate nucleus, or of the body of the dentate nucleus itself, provokes a horizontal nystagmus toward the side excited. According to this view, as Babinski[16] has pointed out, nystagmus can be caused by either a labyrinthine or a cerebellar irritation. Rothmann,[17] on the other hand, from excitation experiments of his own, is led to dispute such an influence of the cerebellum on the eye muscles.

In considering the various hypotheses which have been advanced to account for the appearance of nystagmus in patients with intracranial tumors, it is evident that there is nothing in these views which will satisfactorily explain the absence of nystagmus in the series reported here. It has already been pointed out that of thirty-four patients with verified intracerebellar new growths, at least one third showed no nystagmus. Now in both of these groups—that without rhythmic movements of the eyeballs as well as that with them—the same differences were found in the degree of intracranial tension. In both there were patients with very little changes in the eye-grounds and with only moderate tension of the cerebral structures at operation; there were also patients with advanced choked disks and marked herniation of the cerebellum into the spinal canal. A similar variation was noted in the situation of the new growths.

On consulting the table it is clear that the absence of this sign cannot be accounted for by a paralysis of the eye muscles. In eight of the twelve patients practically normal conjugate movements were possible in all directions. Three showed a slight weakness of one external rectus muscle, but this degree of paresis is very frequently noted in patients who show characteristic oscillations of the eyeballs. In only one instance was a complete paralysis of the abducens found. Parallel movements of the eyes were possible here in each of the other directions.

Probably the most important evidence that the absence of nystagmus was not due—in a number of these cases at least—to an impairment of the fundamental mechanism of nystagmus is afforded by the results from the caloric tests. Caloric examinations made in six of the twelve patients showed well-marked nystagmus following the irrigation of each labyrinth in five.

On contrasting the group of subtentorial tumor cases having nystagmus with the group showing no nystagmus, it is evident that rhythmic oscillations of the eyes were found in every patient with an extracerebellar new growth. It should be mentioned, however, that the nystagmus was rather inconspicuous in the cases of posterior, median growths. In one instance the fine,

9. Bauer and Leidler: The Effect on the Vestibular Eye Reflex of Excising Different Portions of the Brain, Arb. a. d. neurol. Inst. a. d. Wiener Univ., 1912, xix, 155.
10. Bárány: Further Investigations on the Relations of the Vestibular Apparatus to the Central Nervous System, Wien. med. Wchnschr., 1912, lxii, 3210.
11. Hesse: The Rotation and Caloric Nystagmus, Ztschr. f. Neurol. u. Psych., 1913, xv, 377.
12. Tozer and Sherrington: Receptors and Afferents of the Third, Fourth and Sixth Cranial Nerves, Folia Neuro-Biol., 1910, iv, 626.
13. Mills and Weisenburg: Cerebellar Symptoms and Cerebellar Localization, THE JOURNAL A. M. A., Nov. 21, 1914, p. 1813.
14. Oppenheim: Lehrbuch der Nervenkrankheiten, 1913, p. 1383.
15. Horsley, quoted by Babinski and Tournay (Note 16).
16. Babinski and Tournay: The Symptoms of Diseases of the Cerebellum and Their Significance, Tr. Internat. Med. Cong., London, 1913, Sec. XI, Part I.
17. Rothmann, quoted by Oppenheim (Note 14).

rapid jerking of the eyeballs was noticed only when the patient looked toward his right side. The nystagmus in all of the cerebellopontine cases was well marked. Though the number of cases used in this study is comparatively small, one feature is sufficiently prominent to suggest a generalization. The results from the analysis would seem to indicate that when a patient exhibits a cerebellar tumor syndrome without nystagmus, the absence of rhythmic movements of the eyes points toward an intracerebellar localization of the lesion.

There are several explanations which assist in accounting for the presence and absence of nystagmus in patients with supratentorial new growths. Bárány[10] believes that in such cases it is due to pressure exerted on the nystagmus centers—in the region of Deiters' nuclei—by the tumors from a distance (*Fernwirkung*). When the growths are not space-consuming, however, and lead to no increased intracranial tension, rhythmic oscillations of the eyes do not appear. Another suggestion is offered by Bauer and Leidler.[9] They have shown experimentally that after cerebral hemisphere extirpations there is an increased excitability of the corresponding eye muscle nuclei. It is conceivable that certain cerebral tumors may lead to such a result.

Certain experiments of Wilson and Pike[4] are interesting in this connection. They removed various areas of the cortex, frontal, parietal, occipital, and temporal and also destroyed the subcortical ganglionic masses in cats, dogs and monkeys in an attempt to find some region in a hemisphere where a lesion will modify or abolish labyrinthine nystagmus. The only place where they obtained consistent alteration of the labyrinthine stimulus, and that only so far as the quick component was concerned, was in the region of, or adjacent to, the temporal lobe.

A review of the clinical findings in the patients with supratentorial tumors shows that both the quick and the slow phases of nystagmus may exist in patients with new growths occupying very diverse regions in the cerebrum. In six of the seven patients examined with the caloric test (no spontaneous nystagmus) characteristic rhythmic movements of the eyes appeared following the irrigation of either meatus. In the seventh patient there was almost a complete ophthalmoplegia. Similar results were obtained from patients who showed spontaneous nystagmus. The caloric test was used in three of this group and in each case typical nystagmus followed the stimulation of either labyrinth.

SUMMARY

Of the thirty-four verified cases of cerebellar tumor and seventeen verified cases of extracerebellar tumor, eleven showed no nystagmus previous to operation on repeated examination. All of the cases in which it was absent contained intracerebellar new growths—32 per cent. of the intracerebellar series. This suggests that when a patient exhibits a cerebellar tumor syndrome without nystagmus, the absence of rhythmic movements of the eyes points toward an intracerebellar localization of the lesion.

Among the members of both groups (that is, the group with and the one without nystagmus) there were marked differences in the degree of intracranial tension. In each group there were new growths which involved the vermis and others which replaced a part or the whole of one or both hemispheres.

Caloric examinations made in six of the cases in which there were no rhythmic movements of the eyes resulted in characteristic nystagmus from either labyrinth in five.

Of forty verified cases of tumors lying anterior to the cerebellum, eight showed nystagmus previous to operation. Caloric examinations made in seven of the cases without nystagmus provoked characteristic rhythmic oscillations of the eyes from either labyrinth in six.

These results indicate that in many cases of intracranial tumor the absence of nystagmus cannot be accounted for by an impairment of the fundamental mechanism of nystagmus.

THE DIAGNOSIS OF TUMORS IN THE POSTERIOR CRANIAL FOSSA *

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Our knowledge of cerebellar symptoms and of cerebellar localization has advanced considerably during the last few years, chiefly owing to the work of Babinski and Rothmann, but in comparison with *cerebral* symptomatology and localization this progress has not been great. This is mainly because clinicians have not studied their cases with sufficient care, and when diagnosing tumors in the posterior cranial fossa have been satisfied with gross diagnoses.

Recently one of us, with Dr. Mills,[1] in a paper on cerebellar symptomatology and localization, reviewed most of the literature on this subject, both foreign and American. In only a few cases was any attempt made to differentiate cerebellar symptomatology to any of the limbs or parts of the trunk, while a study of the pathologic reports was equally disappointing; most writers were satisfied with the assertion that either one or both lateral lobes or the vermis was implicated, there being few definite statements of the particular part of the cerebellum diseased.

It is advisable, therefore, briefly to state our views on cerebellar localization and cerebellar symptomatology. We have adopted the tentative localization advanced by Mills and Weisenburg. It is probable that many of their views are wrong; but it is necessary to make a start, and the localization advanced by them is perhaps as comprehensive as can be made at the present time. To arrive at a definite conclusion it is necessary for all clinical and pathologic reports to be accurate and complete, so as to leave no doubt as to what part of the cerebellum is implicated.

We believe that the chief function of the cerebellum is to synergize all movements of the body. Whatever symptoms are present, such as hypermetry, adiadokocinesis or tremor, result from loss of synergy. This asynergy can be detected in any part, or parts, of the body. It may be present in one limb, the limbs of one side, in the upper limbs and shoulder

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1. Mills, Charles K., and Weisenburg, Theodore, H.: Cerebellar Symptoms and Cerebellar Localization, Including Kinematographic Observations on Cerebellar Phenomena, THE JOURNAL A. M. A., Nov. 21, 1914, p. 1813.

girdle, in the lower limbs and the pelvic girdle, or in all parts of the body. Not only that, but in the development of these symptoms it is possible to tell whether the lack of synergic movement in the upper limb, for example, is in abduction or adduction, or in upward or downward movement. The methods of elicitation have been carefully described in the paper previously referred to. We wish to emphasize here that it is possible to differentiate cerebellar asynergy in parts of the body.

We have found the Bárány method of investigation of great value in the differentiation and elicitation of symptoms. By means of the caloric tests and the turning tests, it is possible to demonstrate by direct stimulation of the vestibular apparatus the presence or absence of certain phenomena. This subject was presented by one of us in association with Dr. I. H. Jones, before the recent meeting of the American Neurological Association in New York.

In presenting this subject, we first discuss lesions confined strictly to the cerebellum; second, lesions implicating the superior cerebellar peduncle; third, lesions involving the middle cerebellar peduncle; fourth, lesions implicating the inferior cerebellar peduncle; fifth, lesions of the cerebellopontile angle; and last, lesions invading the cerebellopontile angle secondarily.

We desire to emphasize that, to make an accurate diagnosis of a cerebellar lesion, it is necessary to take into consideration not only the cerebellar symptoms, but all other symptoms. We have been repeatedly impressed with this fact since our attention has been more especially directed to this subject. Often we have made a diagnosis of a lesion of the labyrinth, only to find the cerebellum implicated, and vice versa; again we have diagnosed cerebellopontile-angle tumors only to find that the angle was secondarily invaded by a lesion growing from the cerebellum. It has not been infrequent to diagnose lesions of the cerebellum when the tumor has been in the third ventricle and has involved the superior cerebellar peduncles secondarily.

DIAGNOSIS OF LESIONS STRICTLY CONFINED TO THE CEREBELLUM

In accordance with our views of cerebellar function, lesions of the cerebellum itself cause more strictly limited symptoms than those which invade any of the peduncles. Most tumors of the cerebellum are gliomatous and are of slow growth. The majority tend to invade the middle rather than the outer portions of the cerebellum, and as a consequence, the vermis is nearly always involved wholly or in part, in addition to one of the lateral lobes. We believe that in the superior vermis are centered the synergic movements of the upper trunk or shoulder girdle and in the inferior vermis the movements of the lower trunk or of the pelvic girdle. As a consequence there will always be in such lesions, in addition to disturbances in the movement of one or both limbs, alterations in the station and gait.

There is a great difference in the station and gait in those cases in which the shoulder or the pelvic girdle is implicated. In the shoulder girdle cases, both in standing and in walking the feet are not held widely apart nor is there a swaying of the pelvis. The chief difficulty is that the moment the patient attempts to stand or to walk, his trunk leans or falls forward, backward or to one side very markedly, and *much more so* than in the pelvic girdle cases, for in the latter, because of the inability to synergize the movements of the lower trunk with the legs, the difficulty in walking is much greater, the legs are held farther apart, and instead of the patient lurching to one side, forward or backward, the gait is more irregular, the body is held more erectly, and in walking the legs are projected in front of the patient, showing clearly the lack of synergic action between the trunk and limbs. When the shoulder and the pelvic girdle are both involved, it is sometimes almost impossible for the patient to stand or to walk without aid.

A very good way of differentiating shoulder and pelvic involvement is to place the patient on the floor on the hands and knees. While in such a position, if the pelvis be implicated, there will be very marked to and fro swaying of this part, the shoulders remaining practically still, whereas in the other type the pelvis is held steadily, but the head and shoulders sway and deviate to the side of the lesion.

In cases in which the vermis is implicated, the staggering is mainly forward or backward, rather than to one side, and of such cases, it is more marked in the shoulder girdle type. In our experience, if in addition to the involvement of the vermis, the lateral lobes are implicated, the sway of the trunk is to the side of the lesion, although it must not be forgotten that in a progressive cerebellar disease, the patient may learn, for example, to go voluntarily to the left to offset his staggering to the right.

In those instances in which the lateral lobes alone are implicated, the asynergic movements are present only in the limbs of the involved side: if in the superior lobe, in the upper limb, and if in the inferior lobe, in the lower limb. By direct stimulation of the vestibular apparatus it is possible to obtain, for example, a total lack of outward pointing or inward pointing, whereas this is not so readily demonstrated by the ordinary tests.

Nystagmus.—The question whether nystagmus should or should not be present in cerebellar lesions has by no means been settled. According to our views of cerebellar localization we place the synergic center for eye movements in the extreme upper portion of the superior vermis. It is a well-known fact that in chronic lesions strictly confined to the cerebellum, involuntary nystagmus may be present. One very marked case of this type has been carefully studied by means of moving pictures, and was referred to in the paper with Dr. Mills. In this case the nystagmic movements were constant and in all directions—upward, downward, laterally and in a rotatory direction. We regarded these ocular movements as an example of direct cerebellar ocular asynergy. Other examples of nystagmus are found in diseases of the Friedreich's ataxia type. Rarely involuntary nystagmus occurs in progressively developing tumors, but this is not the rule.

If, however, nystagmus be developed by voluntary movement, the lesion is probably extracerebellar. It is especially in these cases that direct stimulation of the vestibular tract demonstrates the true source of such nystagmus. If, for example, the right ear is stimulated by cold water, there will be obtained quick jerking movements of the eyeballs to the opposite side with a slow return to the same side. The slow recoil to the side of the stimulation is the cerebellar movement, while the quick jerk to the opposite side

is the cerebral component. The same results will be obtained if the vestibular apparatus be stimulated by means of the turning chair.

In such tests the impulses go from the labyrinth by the vestibular nerve to the three paracerebellar nuclei — Deiters', von Bechterew's, and triangular nuclei—and thence to the nuclei of the third, fourth, and sixth cranial nerves by the posterior longitudinal bundle, and then to the cerebral cortex. If there be any interruption of this arc, normal nystagmus is not obtained. The location of the lesion will depend on the associated symptoms. If in the eighth nerve there will also be loss of hearing; if in the paracerebellar nuclei, no deafness, but there may be some implication of either the fifth, ninth or tenth cranial nerves, inasmuch as these nuclei are in the outer upper portion of the medulla. If the lesion is in the pons or crus, there may be in addition to the sensory and motor symptoms, involvement of either the seventh, sixth, fifth, fourth or third cranial nerves, with paralysis of associated ocular movement.

Apparently then, the conclusions to be drawn regarding ocular movements are as follows: Involuntary nystagmus is nearly always cerebellar, but voluntary nystagmus is the result of implication of those fibers which are in relation to the vestibular apparatus outside of the cerebellum.

General Symptoms.—The presence of cranial nerve symptoms, as of the seventh, sixth, fifth, ninth, tenth or twelfth, indicates that the lesion is extracerebellar. Dizziness with disturbance of hearing is the result of implication of the vestibular apparatus somewhere in its course and is not a cerebellar symptom. Involvement of the motor fibers, with paresis of the limbs, increased reflexes and Babinski, indicates that there is pressure on the motor apparatus and should not be expected in lesions strictly confined to the cerebellum, except in those cases in which the lesion is very large. As a rule, motor involvement indicates a pontile lesion or a lesion in the angle pressing on the pons. Headache, nausea, vomiting, and choked disk, are, of course, early manifestations, but only in those instances in which there is interruption in the flow of the cerebrospinal fluid, and generally indicate a lesion either in the crus or pons pressing on the aqueduct of Sylvius.

LESIONS OF THE CEREBELLAR PEDUNCLES

We possess little definite knowledge of the functions of the fibers in the cerebellar peduncles. It is supposed that the inferior and middle peduncles transmit impulses to the cerebellum, and that the superior peduncle transmits impulses from this organ. It is probable, however, that all the peduncles transmit impulses in both directions. It is also probable that the inferior peduncles are concerned chiefly with synergic movement of the lower limbs, and to a lesser extent of the upper limbs, the middle peduncle with the synergic movement of the trunk and head, and that the superior peduncles are mainly concerned with the association of cerebral with cerebellar functions. All this, however is theory, based somewhat on anatomic and physiologic facts, but not as yet supported by pathologic and clinical data.

In the literature there are a few instances of lesions confined more or less to one of the peduncles, but it cannot be said that our clinical experience is such that we can differentiate the asynergy resulting from lesions of the superior from those of the middle or inferior peduncles. From our present knowledge all we can say is that lesions strictly confined to any of the peduncles cause asynergic symptoms in all parts of the body and as a consequence we are compelled to make the diagnosis not on the cerebellar symptoms but on those associated with them.

There are instances in the literature in which so-called turning or rolling movements have been recorded in tumors of the middle and of the inferior peduncles, either toward or away from the side of the lesion. These cases, however, are not definite and cannot be relied on. There is, however, this difference in the cerebellar symptomatology of the different peduncles: Because of the anatomic relation of the superior peduncles, lesions of this part invade mostly both sides, the cerebellar symptoms being present all over the body, although rarely, as in the case reported by Mills[2] in which there was thrombosis of the superior cerebellar artery, the asynergy is limited only to the limbs on one side.

The middle cerebellar peduncles being more widely separated, such lesions are often unilateral, whereas tumors implicating the inferior cerebellar peduncle are almost always one-sided.

Tumors of the Superior Cerebellar Peduncles.—In most instances tumors invading these peduncles grow from the third ventricle through the aqueduct of Sylvius, often bisecting the cerebral peduncle and pressing on or destroying one or both red nuclei. In such cases the symptoms consist of a gradually developing paralysis of associated ocular movement upward, and if the lesion extend laterally, central disturbance of hearing on one or both sides, because of the involvement of the posterior corpora quadrigemina. There may be also partial weakness of both upper and lower limbs with the presence of increased reflexes and the Babinski phenomenon. The symptoms resulting from extension of tumors from the third ventricle into the aqueduct of Sylvius were discussed by one of us.[3] Since then we have seen a number of such cases both clinically and pathologically. Because of the preponderant cerebellar symptoms they are nearly always diagnosed as cerebellar, but with the gradual onset of paralysis of associated ocular movement upward the diagnosis is no longer in doubt.

Rarely, as in the case previously referred to,[2] there is thrombosis of the superior cerebellar artery. In such instances there will be loss of unilateral emotional expression in the face on the same side and disturbance of sensation for pain, heat and cold over the other side of the body.

Sometimes large tumors of the thalamus extend downward and implicate the peduncle on one or both sides. In such instances the diagnosis is difficult until the third nucleus becomes involved and with the presence of the paralysis of upward associated ocular movement the diagnosis can be made.

Lesions of the Middle Cerebellar Peduncles.—Tumors in this area are rare. Such lesions usually either extend from the pons into the cerebellum by means of this peduncle or grow from the cerebellum

2. Mills, Charles K.: Preliminary Note on a New Symptom Complex Due to Lesion of the Cerebellum and Cerebello-Rubro-Thalamic System, the Main Symptoms Being Ataxia of the Upper and Lower Extremities of One Side, and on the Other Side Deafness, Paralysis of Emotional Expression in the Face, and Loss of the Senses of Pain, Heat and Cold Over the Entire Half of the Body, Jour. Nerv. and Ment. Dis., February, 1912.

3. Weisenburg, T. H.: Tumors of the Third Ventricle with the Establishment of a Symptom-Complex, Brain, 1910, xxxiii, 250.

into the pons. Hemorrhages or a thrombosis often give limited symptoms. One such case is now under our observation. This patient, a physician of 45 years, suddenly developed numbness on the entire left side of the body with a complete motor right fifth nerve palsy and a partial weakness of the right sixth nerve. He had besides limited cerebellar disturbances in the limbs of the involved side which were best brought out by the Bárány tests. In this instance the diagnosis was made by the presence of the fifth and sixth nerve palsy on the side of the lesion, the sensory symptoms on the opposite side due to the irritation of the median lemniscus and the slight cerebellar asynergy on the side of the lesion.

The conclusion can be drawn that in lesions of the middle cerebellar peduncles the associated phenomena consist of the fifth or sixth nerve symptoms on the side of the lesion, with sensory and motor phenomena on the opposite side.

Lesions of the Inferior Cerebellar Peduncles.—Such tumors are very rare and we have never seen one *limited* to one or both of the inferior peduncles. We have, however, seen a number of tumors of the cerebellum in which there has been an extension of the growth into one or both peduncles. In such growths the associating phenomena, if the lesion extends into the medulla, should consist in implication of the vestibular tract, and disease of the ninth, tenth and twelfth cranial nerves.

Lesions of the Cerebellopontile Angle.—The diagnosis of tumors in this area as a rule is not difficult. We have encountered cases, however, in which such diagnosis had been made, only to find that this angle was invaded secondarily by tumors growing from the cerebellum and more rarely from the pons. The differential diagnosis is important from the surgical standpoint, for it is readily seen that tumors growing *from* the pons or cerebellum offer little hope for surgical removal.

Tumors growing in this angle are usually fibromatous and more rarely fibrosarcoma. We have encountered a number of cysts, but these are generally parts of gliomatous tumors growing from the cerebellum. Most tumors grow from the eighth, and more rarely from the seventh, fifth, or sixth cranial nerves, respectively. The first symptoms are usually referred to the cranial nerve from which the tumor grows and in the course of time the seventh, sixth and fifth nerves become implicated. Of course, the symptoms depend on the size of the growth. In small tumors no pressure is exerted on either the pons or cerebellum. In a well-developed case, besides the cranial nerve symptoms, because of the pressure on the pons, there are motor symptoms on the opposite side and more rarely sensory phenomena.

Because of the pressure on the anterior part of the cerebellum, both the superior and inferior surfaces are involved, this causing cerebellar asynergy of the limbs on the same side. In cases in which the angle is invaded secondarily from the cerebellum or from the pons, the cerebellar symptoms are always much more marked, and it is because we have not been sufficiently careful in the differentiation of the cerebellar phenomena that errors in diagnosis have arisen.

We wish to emphasize here that in the usual tumor growing from the cerebellopontile angle the cerebellar symptoms *are not very marked* and that unless the tumor is very great the asynergy will be limited only to the arm and leg on the side of the growth, and that if there is in addition to the cranial nerve symptoms cerebellar asynergy in the trunk and limbs on both sides, it is probable that the tumor grows either from the cerebellum or more rarely from the pons.

Of course, if the progress of the symptoms is carefully noted, in the latter type of case the cerebellar phenomena should occur first and the cranial nerve symptoms last. But unfortunately we are not always permitted a clear-cut history, and it is because of this that we desire to emphasize this important point in differential diagnoses.

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GALVANOMETRIC STUDIES OF THE CEREBELLAR FUNCTION*

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The object of this study has been to ascertain, if possible, the mechanism of the cerebellar function, as deduced from the phenomena consequent to its lesions. It will be necessary, therefore to formulate at the outset a clear conception as to which of such phenomena are essentially cerebellar in origin. The cerebellum is adjacent to so many important structures and forms such intimate connections with the vestibular system and its oculomotor tracts that many of its lesions, experimental, as well as clinical, but especially the latter, very frequently implicate these other structures, producing their corresponding symptoms. On reviewing the literature we find, therefore, that a number of symptoms have from time to time been ascribed to this organ which have not had their genesis in it at all.

THE CEREBELLUM AND SENSORIUM

Lesions of the cerebellum do not produce disturbances of sensibility, and if these are present, they are invariably due to the involvement of the sensory tracts or nerves found in its vicinity. This is attested by such a great number of observations that it may well be considered an indisputable fact.

What was said with regard to general sensibility applies with equal force to that type of sensation which is implied by the general term of the "muscular sense." As is well known, this type of sensation comprises all those sensory reactions which, originating in the motor organs and their accessories (tendons, joints, etc.), provide us with information as to their state of tension, their direction in active and passive movements, and incidentally aid us in the appreciation of our posture in space. The cerebellum has been thought to be the center of the muscle sense by such noted observers as Lussana,[11] Hitzig, Munk[12] and of late Lewandowsky, and the spinocerebellar tracts have been identified by them as the carriers of the so-called proprioceptive stimuli. It is an undeniable fact, how-

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* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped, addressed envelope.

11. Lussana, F.: Jour. de la physiologie de l'Homme, 1862, v, 418; vi, 1863, 169, etc.

12. Munk, Quoted by André-Thomas: Cerebellar Functions, English Trans. by W. C. Herring, New York, 1912.

ever, that pure cerebellar lesions do not give rise to loss or impairment of the muscle sense and, if this is present, there is invariably found an associated lesion of the posterior columns or their nuclei.[13] Patients with cerebellar disease have complete orientation toward the surrounding world, are fully conscious of all changes in posture during active and passive movements and present no Romberg sign (swaying on being deprived of the aid of vision). As pointed out by Luciani, the dog deprived of a lateral lobe of the cerebellum even anticipates the disturbances that will ensue on walking or prehension of food, and to obviate a fall seeks out some support for the side of the lesion.

THE CEREBELLUM AND MOTILITY

The phenomena consequent to cerebellar lesions belongs to the motor sphere and not to the sensory. This is almost universally conceded now by both physiologists and clinicians. The disturbances manifest themselves, however, in such a large variety of phenomena, owing chiefly to concomitant lesions of other structures, that their interpretation has for a long time been exceedingly difficult. Of late, however, thanks to our increasing knowledge of the anatomy and physiology of the cerebellum as well as of its adjacent structures, this difficulty has been largely removed, and we are able to dissociate the true cerebellar phenomena from the others.

FORCED MOVEMENTS, NYSTAGMUS, ETC.

It is pretty definitely established that such phenomena as forced movements, the circus movements and rolling movements in animals and the so-called imperative movements in man, are not cerebellar in origin. And the same is true of the nystagmus, the conjugate deviation of the eyes and the characteristic attitude of the head so frequently observed after unilateral ablation of the cerebellum in animals and occasionally in cerebellar disease of man.

Fig. 1.—Cat after removal of left motor area of the cerebrum and right lateral lobe of the cerebellum. From photograph taken fifteen days after the first operation and fifteen days after the second. Note marked extension of right forelimb on prolonged standing. The extension is not due to a spasmodic condition of the forelimb, as it takes place gradually and is brought about by the weight of the body forcing the paretic limb out.

These phenomena are essentially vestibular in origin, being due to a lesion of the vestibular complex itself or its oculomotor tracts. Muskens,[14] who made an extensive study of these phenomena in their relation to the pathologic findings at necropsy, found that they are associated with lesions in the paracerebellar nuclei, the vestibulomesencephalic tracts in the posterior longitudinal bundle and the descending vestibulospinal tracts. They are, at any rate, not cerebellar symptoms. The whole lateral lobe of the cerebellum may be removed without producing the slightest indication of these phenomena. I have personally performed such operations in about twenty-five animals (dogs and cats) and can say without hesitation that forced movements as well as nystagmus are not cerebellar in origin. I have seen no instance of rolling movements or a tendency to it in pure cerebellar lesions. They were, however, extremely vehement and almost uncontrollable whenever there was an associated lesion of the vestibular system. These movements in my cases were invariably toward the side of the lesion in accordance with the results of Schiff,[15] Ferrier and Turner,[16] André-Thomas, and Muskens[14] in lesions of the cerebellum, and those of Bechterew[17] and Breuer[18] after section of the eighth nerve.

THE PHENOMENA OF CEREBELLAR LESIONS

The phenomena that are purely cerebellar in genesis are two, the ataxia and the tremor. I am using the term "ataxia" in its general sense to denote irregularity or perversion of muscular action without reference to its nature, and in contradistinction to loss of movement such as is found in paralysis. Personally I have never been convinced as to the existence of hypotonia in cerebellar lesions, a symptom on which Luciani laid so much stress. In my experience, which is in accord with that of Ferrier, it is very inconstant. I have noted it only in very extensive lesions, in lesions which have involved also the vermis and its nuclei. The nucleus tecti, as established by the morphologic studies of Weidenreich[19] and others, may be looked on as a part of the paracerebellar nuclei, which, from their rôle in the production of decerebrate rigidity (Thiele[20]) are known to dominate the tonicity of the body musculature. The presence of hypotonia in such severe lesions of the cerebellum is thus easily explained without attributing it to a disturbance of the chief function of the organ. The ataxia and tremor, on the other hand, are constant and marked, and found in lesions limited to the lateral lobes and in the absence of any involvements of the vestibular complex. And it is to interpret these phenomena that our efforts should be directed in attempting to decipher the complex and mysterious problem of the mechanism of the cerebellar function.

THE INTERPRETATION OF THESE PHENOMENA

There have been numerous theories advanced in explanation of these phenomena. Flourens, Vulpian,[23] Renzi and Dickinson interpreted them as disturbances of coordination, attributing to the cerebellum that function which, according to Foerster's definition of coordination, enables the organism by means of its muscles to produce external effects which fulfil a definite purpose or a set task, accomplishing these effects

13. André-Thomas: Cerebellar Functions, p. 144.
14. Muskens, L. J. J.: Jour. Physiol., 1904, xxxi, 212; Brain, 1914, xxxvi, 352.
15. Schiff, M.: Lehrbuch der Physiologie, 1858, I, 354.
16. Ferrier and Turner: Phil. Tr. Roy. Soc., London, 1894, clxxxv, B, p. 730.
17. Bechterew: Arch. f. d. ges. Physiol., 1882, xxx, 318.
18. Breuer: Arch. f. d. ges. Physiol., 1891, xlviii, 250.
19. Weidenreich: Zeitschr. f. Morphol. u. Anthropol., 1899, i, 259.
20. Thiele, F. D.: Jour. Physiol., London, 1905, xxxii, 355.
23. Vulpian: Leçons sur la physiologie générale et comparée du Système Nerveux, Paris, 1866.

with the smallest possible waste of energy. Bouillaud,[24] Ferrier and Thomas thought the cerebellum to be an organ for the maintenance of body equilibrium and endeavored to explain the phenomena of the lesions on that hypothesis. Babinski,[25] basing his opinion on clinical studies, proposed the theory of asynergia of movements, according to which it is essentially lost in cerebellar lesions in the harmonious association of simple movements necessary for the execution of a complicated movement and he endeavored to prove it by certain clinical tests. Babinski admitted, however, that in addition to asynergia there is also a dysmetria which is the cause of the excessive and ill-proportioned movements in cerebellar lesions. As to the asynergy, it is of course clear that it is merely a broad, general term for incoordination, and this conception of the nature of the disturbances aids us but little in understanding the mechanism of their production.

According to Holmes and Stewart the cerebellar phenomena are the result of defective cooperation of muscles and their antagonists. The cerebellum, according to this view, effects relaxation of the extensors while the flexors are in a state of contraction, and relaxation of the flexors while extension is in progress, the same being applied to the abductors and adductors.

OBJECTIONS TO THE FOREGOING VIEWS

There are two points in common to all these theories: First, they all ascribe to the cerebellum a function which is totally distinct from that possessed by any other part of the nervous system, a function that is closely allied with motor activity but still different from it in a vague, indefinite way. Secondly, the function of the cerebellum, according to any of these theories, cannot be expressed in the terms of a single neuron effect. It is of course evident that coordination of movement, synergy of movement, etc., an effect which manifests itself simultaneously in a large group of muscles, widely isolated from each other and differing in their mode of action, cannot be the expression of an individual neuron. It must be the resultant effect of a large number of neurons all functioning at the same time. This conception of function is, however, entirely unnecessary for our understanding of the activity of any other nerve structure, in which case each unit, whether motor or sensory, may exhibit its individual function independently of the other neurons and produce a corresponding effect.

Fig. 2.—Same cat as shown in Figure 1. In standing posture for two or three minutes. Considerable abduction of both limbs on right, paretic side.

Notable among these was Risien Russell, who maintained that unilateral ablation of the cerebellum was in his experiments followed by genuine paralysis on the side of the lesion, entirely identical with that following ablation of the motor area of the cortex. This is, however, denied by the majority of observers. There was no paralysis in the animals operated on by Bouillaud,[24] Dalton,[26] Longet,[27] Munk and Ferrier and Turner.[16] Personally, I am convinced that pure cerebellar lesions do not give rise to paralysis. One has only to compare the gait of an animal after destruction of the motor area of the cerebrum with that which follows unilateral ablation of the cerebellum to be impressed by the marked dissimilarity between these two conditions. In the former instance, the limbs on the side opposite to the lesion are distinctly paretic; they are unable to support the animal on that side; they bend under it and are frequently placed with the dorsal surface to the ground. In the latter condition, on the other hand, the limbs on the side of the lesion are generally in full extension; they are never placed with the dorsal surface to the ground, but are usually thrown violently forward or outward, and the frequent falls are therefore to be attributed to the ill-proportioned activity of the muscles rather than to loss of their activity.

GOWERS' HYPOTHESIS

Gowers,[33] as far as I can ascertain, was the only one to maintain, on purely theoretical grounds, that the cerebellum has no downward effect whatever, that it exhibits its influence on the cerebrum exclusively, this influence being inhibitory in character, and that cerebellar coordination is nothing else than coordination of the activity of the rolandic cortex. His arguments in support of this theory were as follows: The cerebellum is connected with the periphery by means of afferent or upbearing tracts exclusively. The only efferent or outgoing tracts known to come from it pass by way of the superior cerebellar peduncle to the opposite hemisphere of the cerebrum, and it is inconceivable that an organ having no outgoing tracts to the periphery could exert a direct motor effect on it. Continuing he said:

> The will may alter any muscular contractions by which the upright posture is maintained, and yet without thus being deranged for an instance, and it is difficult to understand how this is possible if the two motor effects, the cerebral and cerebellar, take place apart, and equally difficult if we assume that they only come together in the subordinate centers in the spinal cord.

He therefore concluded that the cerebellum exhibits its function on the motor cortex of the opposite hemisphere of the cerebrum by way of its efferent tracts passing along the superior cerebellar peduncles, and that this function is inhibitory in character, in view of the fact that evidence at hand tends to show that when one set of cells exerts an influence on another set, this is in the nature of control, as witness the influence of the cortical motor cells on the spinal cells in the anterior horns. We must distinguish, said Gowers, between the continuous action of nerve cells, which by its nature needs control and restraint, and occasional action, which requires stimulation, and conceived as excitation.

According to this conception, the phenomena consequent on cerebellar lesions are only indirectly cerebellar; they are primarily cerebral effects, and, like the

24. Bouillaud: Arch. gén. de méd. 1827, xv, 64.
25. Babinski, J.: Rev. neurol., Nov. 9, 1899, p. 784; Feb. 2, 1901, p. 260; April 18, p. 422; May 15, 1902, p. 470; Nov. 15, 1902, p. 1013.
26. Dalton, J. C.: Am. Jour. Med. Sc., 1861, p. 84.
27. Longet: Traité de physiologie, Ed. 3, iii, 466.

33. Gowers, W. R., Lancet, London, 1890, i, 955.

increased reflexes and spasticity after lesions of the upper motor nervous system, are due to removal of inhibition on the nerve cells directly concerned in their production.

It is evident from the foregoing that, according to Luciani, Hughlings Jackson and others, the disturbances of motility in cerebellar lesions are the expression of diminished or lost functional activity on the side of the lesion; according to Gowers, on the other hand, they are the result of exaltation of such activity.

It occurred to me that the problem could be taken out from the realm of pure speculation and solved by means of the galvanometer.

SOLVING THE PROBLEM GALVANOMETRICALLY

It is well known that living tissue in a state of activity exhibits four kinds of phenomena, mechanical, chemical, thermal and electric. Of all these the electric phenomena are the most faithful; they are to be observed, especially so in the case of nerve tissue, when none of the others can be elicited.[34] Among the electric phenomena is the state of negativity which excited tissue assumes with relation to the quiescent part thereof. On connecting two such parts with a galvanometer, with the circuit closed, a current is seen to pass through it, as evidenced by the deflection of the needle, from the quiescent to the active part. The former is therefore in its external or galvanometric relations positive to the latter. In completing the circuit and passing through the tissue the current of course passes in the opposite direction, from the active to the resting part. Active tissue, in other words, behaves electrically toward quiescent tissue as the zinc element of a voltaic couple behaves toward the copper element — it is with regard to the outer or galvanometric circuit, negative to the latter. While this electric phenomenon, the so-called action current, is generally studied by means of the negative variation, or the diminution of the preexisting current of injury which accompanies the excitation of the tissue, the latter, says Hermann,[35] is only a special case of a more general phenomenon, which is, that active tissue is, properly speaking, invariably negative (or "zincative," according to Waller) to resting tissue quite independently of previous preexisting currents. The action current is also entirely independent of the agency which provoked the activity in the tissue. The stimulus may be chemical, mechanical, thermal or electric; it may be direct or indirect. Gotch and Horsley[36] have thus demonstrated that the action current manifests itself in a peripheral nerve, not only on direct excitation of the nerve, but also on stimulation of the contralateral and functionally related motor area of the cerebrum.

Fig. 3.—Brain of cat shown in Figures 1 and 2.

That natural nervous activity is, like that resulting from artificial stimulation, accompanied by the development of a negative state, has been demonstrated by A. Beck,[37] Alcock and Seemann,[38] Einthoven[39] and others. Beck removed the brain, spinal cord and sciatic nerves of a frog *en bloc* and placed the preparation on a glass plate. He then applied nonpolarizable electrodes to various parts of the nervous system and connected them with a galvanometer. He found that there was uniformly an electrical difference of such a nature that the proximal, more active parts of the nervous system were negative to the distal parts. Alcock and Seemann and Einthoven studied the impulses which traverse the vagus during natural respiration and found that a state of negativity invariably passes along the nerve with each inspiratory excursion. The latter also observed minor effects which accompanied the large waves of the inspiratory acts and corresponded with rhythmic contractions of the heart. A natural corollary to this should be that, if active tissue on one side of the body were connected by means of a galvanometer with the corresponding quiescent tissue on the other side, the former would be negative to the latter. That this is so for direct stimulation has been demonstrated by Hermann and Luchsinger, Waller and others in their study of skin currents. On connecting the pads of the hind paws of a cat with the galvanometer and stimulating the sciatic nerve for one of these, the corresponding pad has been found to be negative to the other. In this case the current in its internal circuit has to traverse, of course, from one side of the body to the other. That this holds true for indirect stimulation of tissue I have proved to my satisfaction by the following experiment:

With the cat under ether anesthesia, by means of a tracheal cannula I carefully exposed and isolated both sciatics. After drying all hemorrhage, I freed the nerves from contact with any of the surrounding tissue — which of course had been injured during the operation — and placed them on the boots of nonpolarizable boot electrodes, which had been soaked in Ringer's solution for the preceding twenty-four hours. I connected these with a galvanometer with a contact key in the circuit. The galvanometer employed during this and the other experiments to be described was of the Thomson type and manufactured by Elliot Brothers, London. It had a resistance of 20.74 ohms and its sensitiveness was such that at 37.5 cm. of scale distance 1 cm. deflection, registered 0.0000154 ampere of current, so that its constant (K) was 0.00155 ampere $\left(K = \frac{2\,I \times D}{d}\right)$.

While an experiment was in progress the nerves were kept moist with cotton sponges soaked in normal salt solution at a temperature of 38 C., which were removed during each observation so as to prevent any possible short-circuiting. The sponges were always applied to both nerves at the same time in order to avoid any possible differences of surface temperature.

34. Waller, A. D.: Eight Lectures on the Signs of Life, New York, 1903, E. P. Dutton & Co., p. 10; On Skin Currents. Observations on Cats, Proc. Roy. Soc., 1901, lxix, 171

35. Hermann, L.: Handbuch der Physiologie, ii, part 1, p. 194; Borrutau, D.: Arch. f. d. ges. Physiol., 1901, lxxxiv, 95.

36. Gotch, F., and Horsley, V.: On the Mammalian Nervous System, Its Functions and Their Localization Determined by an Electrical Method, Phil. Tr. Roy Soc. London, 1891, clxxxii, B, p. 332.

37. Beck, A.: Centralbl. f. Physiol., Nov. 8, 1890.

38. Alcock, N. D., and Seemann, J.: Arch. f. d. ges. Physiol. (Pflüger's), 1905, cviii.

39. Einthoven, W.: Ueber Vagusströme, Arch. f. d. ges. Physiol. (Pflüger's), 1908, cxxiv, 246.

With the two sciatic nerves of the animal in the circuit as described, I made a number of observations on making and breaking the circuit, and was satisfied that they were equipotential, that is, that there was no current passing through the galvanometer. I then trephined the skull over the right motor area, both carotids having been ligated early in the operation, and exposed the cortex. The left sciatic promptly became negative to the right, the galvanometer registering each time the circuit was closed, a deflection of 1 or 2 cm., evidently as a result of irritation of the cortex by the exposure and the application of normal salt solution to its surface. The deflections then gradually diminished in range and were finally reduced to only 1 or 2 mm. I then stimulated the motor cortex by the faradic current and determined the area for flexion of the hind limb. Having fastened that limb securely to the board so as to prevent all movement of its muscles, I made observations of the galvanometer while the cortical motor area was being faradized. The left sciatic continued to be negative to the right, the deflection increasing to about 0.5 to 1 cm. I kept up these observations for about an hour and not once did the deflection take place in the opposite direction. I then trephined the skull over the left motor cortex and, as before, stimulated the hind-limb area there while the right hemisphere was at rest. The direction of the deflection was promptly changed, indicating that the right sciatic nerve became negative to the left. While these results were merely what was to be expected, their demonstration is of value in that it suggests to us the means whereby we are able to determine with more or less precision the comparative state of activity on the two sides of the body when one side is hyperfunctionating.

Fig. 4.—Cat two weeks after the removal of right lateral lobe of the cerebellum. Note its ability to support the body by its nonparetic limbs.

Applying this method toward the solution of our problem with reference to the mechanism of the cerebellar function, I carried out the following series of experiments: I removed in one group of cats the right lobe of the cerebellum; in another group the left lobe and kept them under observation for one, two and three weeks. I did not study them galvanometrically during the first week for two reasons. First, the animals were too much depressed and frequently in a state of collapse, and it was not thought wise to submit them to a second operation requiring prolonged anesthesia. Secondly, as my object was to determine the electric potential on the two sides, a state of negativity on the side of the lesion soon after the cerebellar operation would not indicate anything, as it might be due to irritation of the adjacent structures in the cerebellum. I therefore postponed such studies until all the irritative phenomena of Luciani had passed off. Out of all the animals operated on I selected for these studies only seven, three with the right lateral lobe removed and four with the left, as I discarded all those which did not show marked unilateral ataxia and whose wounds did not heal by first intention. Subsequent necropsies have shown that in each case almost an entire lateral lobe had been removed, leaving the vermis intact. The galvanometric studies were carried out in these animals in the same manner as in the experiment recorded above, only that in these animals no artificial stimulation was employed. The two ulnar or the two sciatic nerves were placed on the nonpolarizable electrodes which were in a circuit with the galvanometer, and observations made as to the presence or absence of a current and its direction. While the animals so studied were comparatively few, the results were so constant and so uniform for each kind of lesion that I feel justified in making certain deductions. The nerves on the side of the lesion, whether ulnar or sciatic, were invariably and persistently negative or "zincative" to those of the healthy side. The observations were kept up for two and three hours, and not once was there a deviation from this rule. Closing the circuit promptly brought about a deflection in the galvanometer, the direction of which indicated that a current was passing through it from the healthy side to the injured side. On changing, by means of a reverser, the poles of the circuit, the deflection, of course, took place in the opposite direction, always, however, indicating the same difference of potential between the two sides.

While the direction of the deflection was uniform, its extent was extremely variable, ranging from 2 cm. to 2 mm. within a very short space of time. This apparently depends on the condition of the animal and the state of narcosis, which, it should be remembered, virtually abolishes all nervous activity. That the anesthesia was a factor in determining the extent of the deflection was noted repeatedly when a deflection of only 2 or 3 mm. during deep narcosis became gradually increased on the withdrawal of anesthesia.

Could this difference in potential be due to differences in surface temperature of the two nerves, to differences in the concentration of the salt solution, or to other accidental causes? To determine this point I cut the nerves, leaving only the peripheral portions in contact with the electrodes. The deflections of the galvanometer ceased in each case, showing that the current previously observed was not due to such causes and also that it was not peripheral in origin. In carrying out this experiment care of course should be taken that the cross-sectional surface of the nerves is not in contact with the electrodes.

The question of course arises, what is the origin of this state of negativity or functional hyperactivity on the side of the lesion? It could not have been due to irritation of the cerebellar structures adjacent to the lesion as the same condition obtained three weeks after the cerebellar operation, when all possible irritative phenomena had passed off. It could not have been due to hyperactivity of the spinal cells on the side of the lesion, as, aside from the fact that these cells do not seem to possess any automatic activity, the spinal animal responding only to external stimuli, there was no evidence in my experiments of any hyperactivity of these cells. The reflexes were equal on both sides and there was no evidence of spasticity on the side of the lesion.

It may be assumed, however, that the hyperactivity originates in the paracerebellar nuclei, especially Deiters' nucleus. These nuclei, like the vagal cells in the medulla are known to possess automatic activity, as proved by the decerebrate rigidity following transection of the mesencephalon. Thiele[20] in an extensive study of this rigidity has shown that it originates in these nuclei and that the cerebellum exerts an inhibitory effect on them. Stimulation of the cerebellum produces immediate relaxation of such rigidity, as demonstrated by Sherrington[40] as well as Lowenthal and Horsley.[41]

It may also be assumed that the hyperactivity has its origin in the midbrain or the basal ganglia and that the inhibitory effect of the cerebellum is exerted on these structures. While later investigations tend to deny these structures a motor function, there is evidence that they participate in the production of movement to some extent.

And, finally, it may be supposed, as Gowers theoretically assumed, that there is hyperactivity on the side of the cerebellar lesion which originates in the contralateral motor area of the cerebellum.

To determine this point, I carried out the following experiments: In one cat I removed a very large portion of the right hemisphere of the cerebrum but left the motor area intact. In three others I removed only the motor area. The first cat showed no paralysis on the opposite side; the three others showed it to a very marked degree. Ten to fifteen days after the cerebral operation I removed in these cats the lateral lobe of the cerebellum, contralaterally to the previous lesions (of the three last, two had the right motor area of the cerebrum and the left lateral lobe of the cerebellum removed, and one the left motor area of the cerebrum and the right lateral lobe of the cerebellum) and kept them under observation for fifteen days more. The first cat showed ataxia on the side of the cerebellar lesion, but, as before, no paralysis. The three last, on the other hand, were markedly paralyzed on that side. They showed no ataxia, but did show considerable tremor, involving head, trunk and paretic limbs. The presence of the tremor in these cases, after destruction of motor area, would indicate that this symptom is not entirely cerebral in origin, a supposition advanced, on theoretical grounds, by Gordon Holmes[42] and Kinnier Wilson.[43]

Fig. 5.—Cat shown in Figure 4, after remaining in that posture for two to three minutes. Animal falls over to the right, owing to hyperactivity of the muscles supporting the body on that side (see text).

Galvanometrically these cats gave the following results: The first one, with the motor area intact, although with a large portion of the cerebrum removed, showed a persistent and invariable negativity on the side of the cerebellar lesion, identically the same as in those animals in which a cerebellar lesion only had been produced. The three others, on the other hand, with a lateral lobe of the cerebellum removed and the additional extirpation of the contralateral motor area of the cerebrum, gave no galvanometric deflection whatever. I kept up my observations in these animals for nearly three hours and not once was there a deviation from this rule. Fearing that there was no deflection obtained in the last animals because of a possible fault in the circuit, I cut the sciatic nerve and applied the nonpolarizable electrodes to it in such a manner that one was in contact with the longitudinal surface and the other with the cross section. A current of injury was promptly obtained, showing that there was no such fault there.

The results obtained thus tend to show that the hyperactivity on the side of the cerebellar lesion, as shown by its being electrically negative ("zincative") to the other side, originates in the contralateral motor area of the cerebrum; that following unilateral ablation of the cerebellum the contralateral motor area of the cerebrum becomes hyperexcitable, has been found by Risien Russell[9] and confirmed in part by Luciani.[4] Their results were denied by Bianchi.[44] Cerebellar incoordination is, therefore, in accord with Gowers' hypothesis, only indirectly cerebellar; it is primarily a cerebral effect, an expression of its hyperactivity consequent to the removal of inhibition or control by the opposite half of the cerebellum. The hyperactivity manifests itself in all the movements in that they are excessive, forcible, unchecked and go beyond the mark. In walking the animal throws its foot violently forward; in seizing food its paw goes beyond it, etc. Clinically, as Babinski pointed out, cerebellar patients, in performing the finger-to-nose test, are unable to stop the movement when the point aimed at is reached, and the finger goes beyond it, violently striking the jaw. Similarly, when tracing on a sheet of paper a line which should be stopped at a certain point, the pen goes way beyond this limit. The symptom of adiadokocinesis is therefore best explained by assuming it to be a result of the dysmetria and excess of each component movement, such as pronation and supination, a view suggested by Thomas, rather than that it is due to a delay in the excitomotor activity, as thought by Babinski, the discoverer of this phenomenon.

This conception of the cerebellar function is also in accord with certain well-established anatomic and clinical facts. The cerebellum develops embryologically from the rhomboidal lip of His, along the sensory tracts, as an accessory to them. Anatomically it is too, as Edinger, Sherrington, Gowers and others pointed out, a sensory organ. The effects of its lesions are, however, motor in character. This contradiction between its anatomy and physiology does not exist if we assume the motor phenomena to be cerebral in origin, and the function of the cerebellum to be that of control and restraint, such, to use a crude simile, as that of the vagus, which is also a sensory structure.[45]

40. Sherrington, C. S.: Proc. Roy. Soc. London, 1896, lx, 382; Integrative Action of the Nervous System, N. Y., 1906.
41. Lowenthal and Horsley: Proc. Roy. Soc. London, 1897, lxi, 20.
42. Holmes, Gordon: Brain, 1904-1905, xxvii, 364.
43. Wilson, S. A. Kinnier: The Anatomy and Physiology of the Corpus Striatum, Brain, 1914, xxxvi, 478; Progressive Lenticular Degeneration, Brain, 1911, xxxiv, 465.

44. Bianchi, quoted by Sherrington: Schäfer's Text-Book, ii, 904.
45. It was held by Waller, Schiff and others that the inhibitory fibers of the vagus originate in the nucleus of the spinal accessory. This seems to be disproved, however, by later investigations. (Luciani: Human Physiology, i, Chapter 9.)

Another mystery cleared up by this conception of the cerebellar function is the path by which the cerebellar effects exhibit themselves on the periphery. As is well known, in view of the fact that the cerebellum has no descending tracts to the spinal cord, and also that the effects of its lesions manifest themselves homolaterally and not contralaterally, as is the case in lesions in all other motor and sensory tracts, it was found necessary to conceive an unusual and circuitous course for the transmission of its impulses. It is assumed that, originating in the deep nuclei of the cerebellum, the impulses first ascend by way of the cerebellomesencephalic tracts to the red nucleus of the opposite side and there are relayed, and finally descend by way of Monakow's bundle, or rubrospinal tract, crossing again to reach the spinal on the side whence they first started. This course, besides being different from that of all other motor and sensory structures which, as a rule, cross to the opposite side to exhibit their effect there, and, if homolateral in function, as the direct pyramidal tract or the vestibulospinal tract, go by direct route to the same side, is also untenable in the light of certain anatomic facts. The cerebellum attains its largest development in man, whereas the rubrospinal tract, by which its impulses are supposed to be carried, has been demonstrated only in animals and is in man at best only rudimentary.

According to our conception, however, each half of the cerebellum exhibits its function on the opposite hemisphere of the cerebrum, its tracts crossing to the other side like those of all other sensory tracts. Its indirect effects, in the form of regulated and well-proportioned movements, manifest themselves on its own side, as, originating in the motor cortex of that hemisphere of the cerebrum, the motor impulses, passing by way of the pyramidal tracts cross to the opposite side before reaching the "final common path" in the spinal cord.

Fig. 6.—Brain of cat shown in Figures 4 and 5.

Finally, there is a good deal of evidence that there is a structural linkage between the cerebral hemisphere of one side and the cerebellar of the other side, and that the cerebellum is subservient to the cerebrum. It has been observed clinically in cases of congenital or acquired atrophy of the cerebrum, and experimentally after destruction of the motor cortex, especially if the optic thalamus was involved in the lesion, that there was simultaneously in the congenital lesions or after some time in the acquired variety, an atrophy or degeneration of the opposite lateral lobe of the cerebellum. These cases are described under the name of crossed hemiatrophy.

With reference to the tremor it appears to be largely dependent on an interaction between the cerebellum and the midbrain structures. I am engaged in some experiments with reference to these points at present and hope to communicate the results at some time in the future.

To sum up, the cerebellum is a complex structure having no direct effect on the periphery, but acting primarily on the motor cortex, the paracerebellar nuclei, and probably also the basal ganglia and ruber. Its primary effects are those of inhibiting, controlling and regulating the activity of these latter structures. Its ultimate effects are appropriate and rhythmic muscular action.

5 South Wabash Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GREY, WEISENBERG AND WORK, AND MEYERS

DR. W. F. SCHALLER, San Francisco: Dr. Work brought out the relationship between certain symptoms and definite localization of lesions. Certainly this is progress in the right direction. It is not a question only of posterior fossa disease characterized by a syndrome, it is a question of exact anatomic localization. The only way we shall make an advance in this work is by correlating the symptomatology and pathology; by studying our specimens in macroscopic and microscopic serial sections.

Dr. Meyers does not believe that nystagmus is primarily an expression of disturbed cerebellar function. I am inclined to favor this view, and regard vestibular nystagmus as a reflex and as the motor expression of a stimulus somewhere along the vestibulo-ocular path: labyrinth, vestibular nerve, Deiters' nucleus, posterior longitudinal bundle and oculomotor nuclei. This stimulus may be due to a focal lesion, or to pressure. Dr. Grey in his conclusions stated that in posterior fossa tumor without nystagmus he was inclined to believe that the tumor was intracerebellar; and that in cases of extracerebellar tumor he generally found nystagmus. May I ask Dr. Grey if the reason for this was not that in cases of extracerebellar tumor the intracranial pressure was increased and the nystagmus was due to disturbance of function by pressure? If there be a nystagmus following cerebellar lesions proper, I believe it is due to involvement of the vermis in relation to its efferent fibers to Deiters', i. e., cerebellovestibular tract (*Hacken Bundel, faisceau en crochet*) which forms an arm of the nystagmus reflex in that stimuli are received in this way from the muscles and joints and pass to the vermis before acting on Deiters' nucleus. To illustrate these views I wish briefly to mention three posterior fossa cases recently studied clinically and anatomically. In the first case there was no nystagmus, no intracranial pressure. The lesion was a vascular one, limited to the white matter of both cerebellar hemispheres and involving the dentate nucleus on one side. There was marked ataxia of the cerebellar type. The vestibulo-ocular reflex path was not involved; hence absence of nystagmus. The second case was that of a right sided cerebellopontine angle tumor in which the usual signs of intracranial pressure, vertigo, nausea, headache and choked disks were absent. The tumor had caused a considerable atrophy of the cerebellar hemisphere on the same side and also the pons, and by replacing these structures had not materially added to the contents of the posterior fossa; hence absence of intracranial pressure. Ataxia of cerebellar type was marked. A slight nystagmus more marked to the right was explained by direct involvement of the vestibulo-ocular reflex. The third case was a tumor in the fourth ventricle arising from the inferior tela. The marked nystagmus could be explained by direct pressure of the growth on Deiters' nucleus. Ataxia was absent.

DR. A. L. SKOOG, Kansas City: The subject of cerebellar tumor is always interesting, and might be broadened to include any of the lesions in the cerebellum. The subject of cerebellar function has received a great deal of attention in the last few years and many new facts have been presented. However, as indicated by Dr. Work, many of the state-

ments are really theoretical, which perhaps makes the subject still more interesting. As stated by several of the speakers, it invites the possibility of error in diagnosis. It has been stated that glioma is the most frequent type of tumor found in the cerebellum. This is in accordance with my own view. The glioma is a type of tumor which always springs from glia tissue, but there are those gliomas which are more dense than others, those that have a tendency to be better outlined. The type, however, is the infiltrating one and at times they are rather difficult to differentiate from some simple degenerating conditions of the central nervous tissue. I have always been interested to know whether there is any difference in symptomatology, even though the tumor be located in the same place, between the soft and infiltrating and the more dense one. That might be a reason for the difference in symptomatology which was brought out in the discussion.

DR. G. W. ROBINSON, Kansas City: Dr. Work speaks of the diagnosis of tumors in the posterior cranial fossa. I should like to ask Dr. Work to speak on the differentiation between these and those situated more anteriorly and giving cerebellar symptoms. I recall two or three patients with lesions (tumor or trauma) of the frontal lobe, chiefly of the middle frontal convolutions, the apraxic center, giving a contralateral cerebellar syndrome. Another condition I have observed recently has been a patient with chronic progressive cerebellar tremor, without ataxia or nystagmus. I should like some of the men who read these excellent papers to tell us, if possible, the location of the lesion giving this particular symptom. I have recently observed two patients who had shown no nystagmus. At necropsy one had a degeneration of the right cerebellar hemisphere resulting from an encephalitis (associated with typhoid fever). The other had a large cyst involving the right cerebellar hemisphere.

DR. JOHN S. TURNER, Dallas, Texas: These cases of cerebellar disturbance are very interesting to all of us and I rise to report a case and to present a question and to ask some of the gentlemen in closing to touch on it. It is in reference to a case recently occurring in our part of the country which became almost a medicolegal case, but by having the records properly presented a damage suit was prevented. The case came under my observation with all the typical symptoms of cerebellar tumor—nystagmus and other eye symptoms. The patient was a girl of 18, being able to go about, but not seeing very well, and having headaches, vomiting, titubation, disturbed coordination and considerable emaciation running over a long period of time. After observing the symptoms and making a tentative diagnosis, I sent her to a physician to look over the eye conditions. He confirmed my diagnosis in so far as the eyes were concerned, using some atropin to further dilate the pupil. Immediately after the dilatation the patient became blind and has never seen since that moment. Her headaches ceased, she gained in weight and was physically much better, but was totally blind. A damage suit was threatened against the physician for making the patient blind, but the records showing that she was partially so, and the opinion that she would ultimately become blind anyway prevented the suit.

DR. CECIL E. REYNOLDS, Los Angeles: Dr. Work laid stress on the paralysis of the sixth nerve in cerebellar lesions, and I think it is very important. I remember a case of Dr. Charles A. Ballance of London at the Great Ormond Street Hospital in 1905, in which there was weakness of the sixth nerve on the left side and a bulging of the occipital fossa on the right side. The optic neuritis was more advanced on the left side. Mr. Ballance operated on the side which bulged, but the tumor was eventually discovered on the same side as the sixth nerve paresis. In my experience the signs of intracranial pressure have been more intense in cerebellar lesions and more early than in cerebral lesions, and this fact in a measure militates against the value of sixth nerve paralysis as a localizing sign in cerebellar disease, because in general increase of intracranial pressure the sixth nerve is often first affected by reason of that general pressure.

I would like to ask some of the gentlemen who have spoken as to their experience of the value of skew-deviation as a localizing sign. Dr. Robinson mentioned a confusion of frontal lobe lesions with cerebellar lesions. I have seen several cases in which a frontal lobe lesion was mistaken for a cerebellar lesion, and it appears to me that in cerebellar lesions the head is more twisted, with the chin pointing to the shoulder of the affected side, whereas in frontal lobe lesions the eyes deviate to one side or the other without much tilting of the head. Also I have noticed that in addition to hebetude out of proportion to the pressure, there is usually a slow and deliberate Babinski's sign in frontal lobe lesions, more sluggish than that usually seen in lesions of the pyramidal tract.

DR. GEORGE A. MOLEEN, Denver: Just one remark on what Dr. Work said with reference to the extension of tumors from the thalamus downward. Is it not the rule to find unilateral paralysis of the third nerve prior to the involvement of conjugate deviation, the center of which lies pretty close to the sixth center in the pons? From this we presume there is a communicating fiber to the third, and in these extending tumors it would seem fair to expect a unilateral lesion of the third before the affection or disturbance of conjugate deviation would occur.

DR. PHILIP WORK, Pueblo, Colo.: We found in working up our pathologic material on this subject that cases which we thought definitely cases or tumor of one or other peduncle proved to be cases in which the involvement had gone past the peduncle, and the diagnosis and localization of symptoms has been hindered by the fact that these cases are so far advanced before they come to section. I personally believe that the matter of function of the peduncles—and coincident with it the establishment of a definite symptomatology—can only be hoped for when we have seen a sufficient number of early cases come to section. This is predicated on a series of necropsies from coincident cases in which the brain lesion was discovered incidentally in routine examination. The differential diagnosis of cerebellar and frontal tumor has been mentioned by one gentleman, but is too big a subject, I feel, to take up here. I have in mind several cases in our own series in which that identical question came up. In two cases in which the clinical diagnosis was made of cerebellar trouble, section showed frontal trouble, with definite cerebellar symptoms. These cases are being worked up at the present time, and we hope to be able to report something of value when we get them correlated. The loss of sight spoken of in the medicolegal case would seem to me to be due to the advanced state of the optic condition. The fact that the other symptoms abated more or less I do not attempt to reconcile.

DR. ERNEST GREY, Boston: Dr. Schaller has referred to increased intracranial pressure as an important factor in the production of nystagmus. This is the view of Bárány and others, and in our earlier work we inclined to the same belief. Recent observations, however, have led us to seek another explanation. We found nystagmus present in a group of patients with subtentorial new growths, some of whom had greatly increased intracranial pressure, while others had practically normal pressure. We have had a similar series of patients with the same variations in the degree of intracranial tension; none showed any nystagmus.

DR. I. LEON MEYERS, Chicago: Something has been mentioned in regard to nystagmus. I can simply add what I said in my paper—in my experience true cerebellar lesions do not give rise to nystagmus unless there is additional involvement of the vestibular complex. Skew-deviation has been observed in a few experiments on dogs during the time of anesthesia, but was lost after the animal awakened. Frederick Batten in a paper published in *Brain* in 1903 determined that the position of the head is not diagnostic of cerebellar lesions. It appears that the position of the head is due to the loss of knowledge of special relationship and is vestibular in origin. In my judgment the cerebellum is purely an organ which exerts an influence on other nerve cells in the brain structures—not on the periphery; the control it exerts is chiefly in the motor sphere.

OPERATIVE TREATMENT OF BUNIONS

BY THE MAYO METHOD*

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DEFINITION

The bunion is a painful bursitis superimposed on a hallux valgus. The degree of hallux valgus is by no means a criterion of the severity of the bunion (Fig. 1). The Mayo operation for bunion is for the relief of the painful bursitis and not a cosmetic operation for doing away with the deformity of the hallux valgus, though incidentally the deformity is reduced. For many years the operation[1] about to be described has been used in the Mayo Clinic and has given such satisfactory results that I think it wise to further emphasize its usefulness.

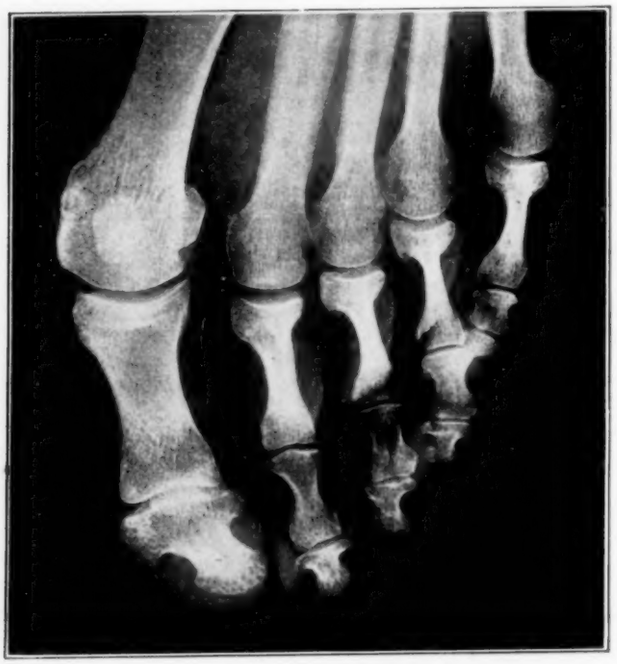


Fig. 1.—Moderate hallux valgus with painful bunion.

ANATOMY

Briefly we may consider the anatomic findings in this deformity. It is not seen in children who have never worn stiff shoes nor is it noted in individuals who have always gone barefoot. In these normal feet the great toe is in line with or turns slightly inward from the inner border of the foot. It has been stated that in the bunion foot the great toe is the longest, whereas the second toe should be of the same length or even a little longer. While this is not invariably true, still in this type of foot, that is, with the great toe the longest, the deformity is often present. In hallux valgus a line drawn through the anteroposterior axis of the great toe courses anteriorly outward at an angle of 30 degrees or more. The condition has generally been caused by wearing too short a shoe and this information is many times voluntarily given by the patient. The tendon of the extensor proprius hallucis becomes displaced outward and further increases the deformity. The pressure and irritation of the shoe causes more or less of a chafing action on the skin over the prominent inner aspect of the head of the first metatarsal bone. This irritation in many cases causes a distinct hypertrophy of the end of the bone and small bony exostoses occasionally form. Nature comes to the rescue with the formation of a bursa and we then have a bunion. It is only when this bursa becomes inflamed, mechanically or by infections, that tenderness results and surgery is indicated. Many cases go on to sepsis. When this occurs, operation should not be undertaken until the infection has completely subsided. Complete rest and alcohol dressings usually promptly clear up the infection. On top of the bursa may come a corn, adding further to the distress and inconvenience of the patient. Thus it may be stated that the symptoms depend not on the deformity but on the inflammatory changes in the bursal sac causing oftentimes continual discomfort and pain. The proximal phalanx of the first toe articulates often only against part of the head of the first metatarsal, the inner portion of the head impinging against the skin of the inner side of the foot. Often in patients in middle life or beyond, rarely in the young, there is an associated arthritis with deposits. These patients do not obtain the great relief accorded the nonarthritic cases. They should not on this account be denied the benefits of the operation, since formation of the new joint is a great relief.

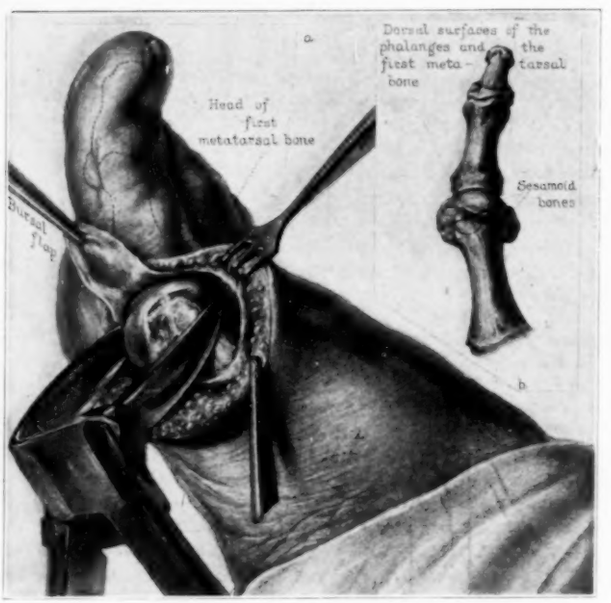


Fig. 2.—*a*, Removal of head of first metatarsal bone. Bursal flap dissected free; *b*, angle at which head of metatarsal is removed, showing short incision at right angles to long incision. The short incision removes the hypertrophy of the bone.

All cases of hallux valgus do not cause inconvenience and many cases of moderate bunion had better not be interfered with surgically. Too often the cases are passed over lightly by the surgeon when the complaint is really a serious and disabling one to the patient and demands surgical interference. Bunion has long been looked on as a trifling condition, but to the individual with the pain it is anything but trifling.

* Read before the Section on Orthopedic Surgery at the Sixty-Sixth Annual Session of the American Medical Association, San Francisco, June, 1915.

1. Mayo, C. H.: The Surgical Treatment of Bunion, Ann. Surg., 1908, xlviii, 300.

OPERATIONS

Heuter[2] advised excision of the head of the first metatarsal bone for the relief of the condition. Hamilton[3] later reported eleven cases and his name is often mentioned in connection with the operation. Schede[4] advised excision of the bursa and removal of part of the head of the first metatarsal not in contact with the phalanx. Barker and Reverdin advised removal of the

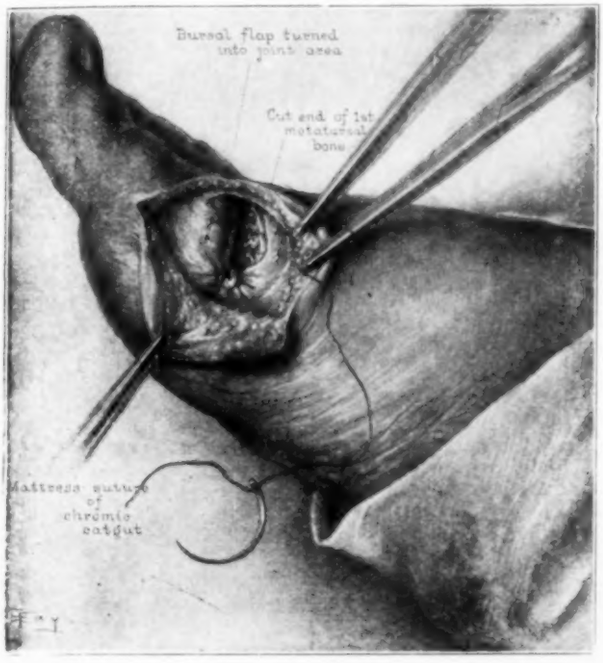


Fig. 3.—Head of bone removed. Bursal flap tucked in and approximated to periosteum of first metatarsal by two mattress sutures of chromic catgut.

exostoses and of a wedge of the metatarsal just above the head. Various other operations have been suggested, such as removal of part of the proximal phalanx and part of the head of the metatarsal. It has been suggested that the head of the metatarsal bone be removed by an incision between the great and second toes, thus doing away with an incision on the inner side of the foot. The objection to an incision on the inner part of the foot we have found to be theoretic rather than real. By making a curved elliptical incision with the curve upward, it can be so arranged that the pressure of the shoe comes below and not on the line of incision. The operation has been performed in our clinic in 148 cases, nearly all of them double, with, on the whole, most gratifying results.

Many patients have the condition associated with hammer toe, callosities on the bottom of the feet, etc., and unless it is carefully explained beforehand to the patients what they may expect from the operation, they may be disappointed that they are not relieved of all their foot trouble. However, in cases carefully selected, the results have been most excellent. Great care must be exercised in patients with flat feet to see that too much of the head is not excised. At the same time, enough must be excised to relieve the condition.

2. Heuter: Quoted by Holmes, T., in System of Surgery, Philadelphia, Henry C. Lea's Son & Co., 1882, iii, 372.
3. Hamilton: Quoted by Holmes, T., in System of Surgery, Philadelphia, Henry C. Lea's Son & Co., 1882, iii, 372.
4. Schede: Quoted by von Bergmann, von Bruns, and von Mikulicz in A System of Practical Surgery, Philadelphia, Lea & Febiger, 1904, iii, 854.

TECHNIC

The actual technic of the operation may be briefly stated: A semilunar incision with the curve upward is made at the metatarsal phalangeal joint of the great toe. The skin is dissected back, being careful not to puncture it. A flap including the bursa is then taken with its base attached to the proximal phalanx, having its convexity extending on to the head of the first metatarsal (Fig. 2a). The fat is then pushed back from around the head of the bone and a large bone-biter is introduced from without inward, aiming to take off most of the articulating surface of the head of the metatarsal bone, leaving sufficient of the enlarged end to serve as a weight-bearing portion (Fig. 3). This bone-biter is introduced at an angle of about 75 degrees so that the outer side of the metatarsal bone is a little longer than the inner side after the piece is removed (Fig. 4). With a rongeur bone-biter the prominence left on the inner side is smoothed down (Fig. 2b). The flap is then tucked in and the base of the flap sewed to the periosteum of the first metatarsal by two mattress sutures of chromic catgut (Fig. 3). This serves to straighten the toe and put it in its proper line. The skin is then closed with one or two sutures of silkworm gut and closer approximation is secured by interrupted horsehair sutures. A pad of gauze is inserted between the great and second toes to straighten the great toe (Fig. 5). A dressing soaked with alcohol is applied and carefully bandaged.

Fig. 4.—Greater part of metatarsal head removed, leaving sufficient of the expansion for weight-bearing.

AFTER-CARE

No splints are necessary. Pressure of the bed clothes is removed by the use of half barrel-hoops. Twice daily the bandage is opened enough at the end of the great toe to allow pouring in of alcohol, thus soaking the dressing and adding greatly to the comfort of the patient. Stitches are removed in a week, weight-bearing permitted in ten days and the patient encouraged to use the feet as soon as possible. A small pad

of gauze or cotton is to be worn between the first and second toes for a few weeks. The wearing of shoes with a proper straight inner side is insisted on. All patients will not follow this advice, but by carefully explaining why it is to be desired, the responsibility is then placed on them.

ABSTRACT OF DISCUSSION

DR. E. W. RYERSON, Chicago: It is a rather difficult thing for me tactfully to say what I think about the Mayo operation, because I do not think it should often be done, unless it is impossible to bring the end of the first metatarsal bone and the phalanges of the toe into a straight line without undue force. It is undoubtedly true that a great many people have the wrong view of the Mayo operation. I have myself operated under the idea that it consisted in removing the entire head of the first metatarsal bone. That should never be done. It disturbs the balance of the foot so markedly, that people who have had the entire end of the first metatarsal removed are always more or less incapacitated. I have seen some thirty patients, about twenty of whom were operated on by me, and the others were operated on by other men, all of whom have had trouble after the Mayo operation. It is true that the bunion undoubtedly was cured, but they had a painful static disturbance of the foot and a severe type of flatfoot in all of these cases. Now what should be done? In many cases there is no bursa whatever, and in many other cases the bursa is small. There can be a much irritated skin without a bursa, and with the presence of a rather large—not always enlarged—metatarsal head, the divergence of the big toe outward, of course, allows the pressure of the shoe to come against the end of the metatarsal. The thing to do—and I have done it frequently with satisfaction—is to make exactly the same kind of an incision that Dr. Henderson and Dr. Mayo use; to push the toe down where it will be out of the way; to take a sharp chisel and start it at the front of the inner side of the metatarsal bone which is just where the edge of the phalanx comes, and cut backward, chiseling off the projecting portion of the bone. We can remove a piece an inch long, or even more, if necessary, down along the shaft of the bone, the portion of which is making the trouble, and it is extremely important to shave down the shaft of the bone just as carefully as one possibly can, so as to leave no little spicules of bone sticking out and no little shreds of periosteum, and make the whole of the bone smooth and practically cylindrical. Do not disturb the rest of the articular surfaces unless you have to. We all know that in extreme cases the big toe is pushed way out of line, and it cannot be brought anywhere near straight without removing some of the articular surface, and in such cases Dr. Mayo's operation is excellent and has proved its use, as emphasized by the speaker; but the inner side of the bone should be trimmed off very carefully. That is the main thing. It is the inner side of the bone that makes the trouble. It is also wise in many cases to excise the thickened skin as well, but this is not always necessary. One must always suture the skin very accurately and it is well to twist bleeding vessels instead of ligating them. It is my personal opinion that you should avoid the Mayo operation in every case you possibly can.

Fig. 5.—*a*, subcutaneous tissue sutured with interrupted catgut sutures; *b*, location of scar where shoe will not press on it. A pad of gauze is placed between the first and second toes to maintain the correct position of the great toe.

DR. JOHN RIDLON, Chicago: To emphasize the difference of opinion among men working side by side in the same town, I wish to say that I agree with Dr. Ryerson only in one statement; that is, that the Mayo operation should always be avoided. Further than that, I would want to say that I think the Mayo operation a much better operation than the one described to you by Dr. Ryerson. I believe that the success of an operation on a big toe with a bunion or hallux valgus, in order to secure a useful, strong, mobile and painless joint, lies in the taking away of a lot of bone. I remove all of the head, and then some, and all of the knobs, and I am particularly careful to remove any knobs on the plantar surface of the foot.

DR. J. P. LORD, Omaha: I have performed the Mayo operation since it was first described by Dr. Charles Mayo, and I have undertaken to follow the technic as originally outlined by him, and that technic does not recommend the removal of the whole of the head of the bone—but about three fifths, as I remember it, of the articular enlargement—then the thorough removal of the projecting bone on the inner side, and the following of all of the details. It has never brought me anything but the most complete satisfaction. I think that if too much bone is not removed, the objection raised by Dr. Ryerson, that it is conducive to flatfoot, is not borne out, at least by my experience, and I simply wish to put myself on the side favoring the Mayo operation as being the best procedure for the condition described.

DR. LEONARD W. ELY, San Francisco: There is one point in Dr. Henderson's paper to which I should like to take exception, namely, the causation of a bunion. The simplest things, when we come to examine them, we find are not simple at all. I always assumed that a bunion was caused by short shoes, but people who wear short shoes are not always those who have bunions, and many people who have worn broad shoes and long shoes all their lives have bunions. Young of Philadelphia discovered one cause in a bone which pried the first and second metatarsals apart. Some German observer maintains that a bunion is really not a hallux valgus but a hallux varus, caused by a varus position of the metatarsal bone. He ascribes the ultimate cause of it to an obliquity of the articulation of the metatarsal with the tarsus. That looked extremely probable, and I assembled a great many roentgenograms with the idea of finding out if it was so. It is not, as far as I can make out. It seems to me that our knowledge of this subject will be quickened if we will not assume a cause, but will try to find out the real cause of the deformity, and possibly improve our treatment on that basis. The insertion of a bursa I have never found necessary. I agree with Dr. Ryerson that if one takes off as much bone as is necessary at the end of the metatarsal, one will get a fairly movable joint.

DR. J. T. RUGH, Philadelphia: I just want to call attention to one little point which I usually have followed in this operation, though the conditions that are present in the individual case should determine the type of the operation. It does not appeal to me to be the best surgery to make

the base of the flap anteriorly. The vitality of the flap, I feel, would be endangered. I always make my flap with the base of it posteriorly along the side of the metatarsal to guard against sloughing.

DR. B. M. J. CONLIN, Long Beach, Calif.: Bunions are not caused by either short or tight shoes. After a careful study of bunions for over forty years I have come to the conclusion that they are hereditary. The natives of the Sandwich Islands and the Indians of Mexico, who never wear shoes, have bunions; and the people wearing short, tight, ill-fitting shoes do not have bunions, unless they inherit them. The bunion in the human species is analogous to the ringbone in the horse, and the breeders of thoroughbred horses have demonstrated beyond a doubt that ringbone is transmitted from parent to offspring.

DR. E. A. RICH, Tacoma, Wash.: In general considerations with regard to feet afflicted with bunions, two facts seem to stand out most prominently; first, a varying degree of flatfoot is constantly present, and second, this flatfoot usually is not of the painful variety. I have in mind cases that present with so marked a degree of flatfoot that the bunion deformity would seem insignificant, yet the bunion is the only part of the foot that causes pain. This fact further illustrates some points recently brought out in the controversy in the columns of THE JOURNAL over flat feet, namely, that the degree of flatfoot cannot be gaged by the symptoms. It is my conviction that the flatfoot condition in operative bunion cases does not need treatment and end results will be better if no attempt is made to correct the arch deformity.

We have been doing our own operation on bunions, which is a little more extensive than that of the Mayos. We have taken out more bone. Often the head of the metatarsal has to come out, but usually part of the articulating surface of the joint can be saved. Instead of using the bone clippers we prefer a sharp chisel that will directly cleave the bone and not crush it. We believe that there is less cause for regret when too much bone is removed than when too little is taken away.

DR. JOHN F. GOLDEN, Chicago: Most of the bunions that have come to me for the last eight years have been operated on according to the method of Dr. Henderson. It occurred to me during the discussion that probably the bunions came earlier to the man in orthopedics and later to the man in general surgery. The bunions that we get are large ones, and usually the foot is markedly flat. In those cases I have acted according to Dr. Henderson's procedure, waiting as long as possible and removing as little as possible, and the results have been very good. I might ask Dr. Henderson in closing this discussion to mention the formation of hematomas, which frequently ensues. We aspirate them about the third day, and we do not touch them with our fingers or with the sutures. Everything is handled with metal; not even touched with gloves. We use ligatures practically not at all, and if hematoma results we simply aspirate that hematoma at the end of the second or third day. I saw Dr. Smith do an operation on a number of stiff fingers, and I noted the analogy between the technic he used and that which is followed by Dr. Henderson in the case of flat feet.

DR. M. S. HENDERSON, Rochester, Minn.: I can say that I am just as positive that this method is the best as Dr. Ryerson is that it is not, because I believe the whole thing to hinge on the fact, which I probably did not emphasize in the paper, that the bunion foot is a particular type of foot. The great toe is usually the longest, and it should not be the longest, or at least should not be any longer than the second toe. Now that is not an invariable rule, but in a large majority of cases it is true, and I do not think we can put aside the fact that short shoes produce bunions. They do not always produce them, but they help, and I do not believe a bunion can be cured by the operation Dr. Ryerson describes. Some of the head of the bone—the articular surface—must be taken off to shorten the great toe. Of course, these people come to us in all conditions and the severe type cannot be absolutely cured. They will always have some trouble and we always tell them so, but we can relieve them greatly. Many cases can be cured by proper shoes and care of the feet, and on these we do not operate. Dr. Golden mentions hematoma. I think he is quite right. Unless one is very careful, hematoma forms; this should be aspirated about the second day. Dr. Rugh mentions the type of flap. I have tried all kinds of flaps—from the phalanx with the base backwards, with the base below, and I am of the opinion that the flap in front with the base toward the phalanx is the best. I do not believe that it becomes necrotic; at least, I have had no evidence to point that way.

VACCINE TREATMENT OF HODGKIN'S DISEASE

REPORT OF A CASE

A. R. HATCHER, M.D.
AND
W. G. LEMMON, M.D.
WELLINGTON, KAN.

From 1832, when Hodgkin recorded a series of cases, up to 1913, the treatment of Hodgkin's disease was futile, and the outcome fatal. In the acute forms, death occurred in a few months; while in the chronic type, patients often survived two or three years, during which time remissions of symptoms and size of glands were frequent.

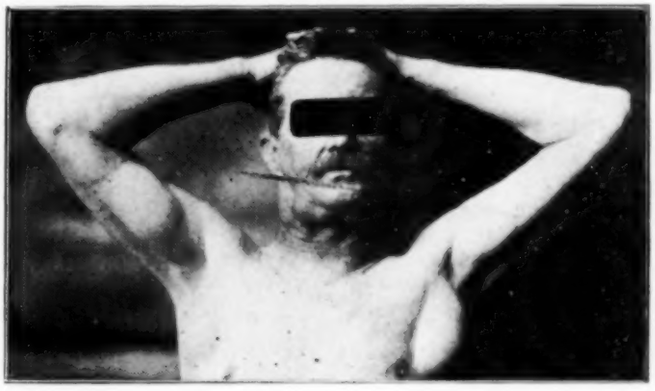


Fig. 1.—Patient, July 1, 1914, before treatment was begun.

The etiology up to this time was unknown. A few believed it to be a tuberculous or paratuberculous adenitis, some held that it was a form of malignancy, while a few others believed it to be an infection probably entering through the tonsils. In 1910, Fränkel and Much found a gram-positive, non-acid-fast, diphtheroid bacillus in smears from the glands in a series of cases. They believed this bacillus to be the specific cause of the disease. In 1913, Bunting and Yates in America and Negri and Mieremet abroad succeeded in cultivating an organism corresponding to the one found in smears by Fränkel and Much. A little later Billings and Rosenow[1] published results of treatment with vaccines made from the organisms. Their method of preparation comprised growing the organisms on Loeffler's blood serum, ascites agar or blood agar, for from twenty-four to forty-eight hours, suspension in

1. Billings, Frank, and Rosenow, E. C.: The Etiology and Vaccine Treatment of Hodgkin's Disease, THE JOURNAL A. M. A., Dec. 13, 1913, p. 2122.

physiologic salt solution, and heating from forty to sixty minutes at 60 C. (140 F.).

The case which we wish to report was treated by vaccines and the Roentgen ray. There was an intercurrent acute suppurative appendicitis.

History.—A retired farmer, aged 63, married, who had had rheumatism when a child, and occasional attacks of myalgia since, but no other illness, in the latter part of February, 1914, had what he described as "a breaking out on the face." A few days later he noticed swellings beneath the angles of the jaws and ears; these gradually increased in size, and in two or three weeks, swelling was noticeable in the axilla and groins. The tumor formations were never painful, tender or red. He rapidly became weak and emaciated, and complained of extreme nervousness.

Examination.—Tumor formations as shown in Figure 1 were present. The masses apparently consisted of enlarged discrete, nonadherent, painless lymph nodes. The mucous membranes were pale. Physical examination otherwise was negative.

The urine was pale amber, acid, specific gravity 1.008, albumin and sugar negative. Microscopically there were a few hyaline casts and amorphous urates. The red corpuscles in the blood numbered 3,200,000; hemoglobin, from 55 to 60; white blood cells, 7,200; polymorphonuclears, 59; mononuclears, 41.

Treatment.—In June, 1914, one of the glands was taken from the neck and sent to Dr. F. W. Gaarde of Chicago for diagnosis and preparation of autogenous vaccine.

July 1, 1914, vaccine therapy was begun, consisting of subcutaneous injections twice a week for seven weeks. There were no severe reactions. The initial dose was 25,000,000; this was gradually increased to 2,000,000,000, and in addition to this the patient was given Roentgen-ray treatment every five days for eight weeks. He received six injections before there was any amelioration in the symptoms or the size of the glands. After this they gradually reduced to about two thirds of their original size. August 27, he was taken ill with acute suppurative appendicitis. He was operated on, September 8, and an abscess was drained. The tubes were removed on the eighth day, and drainage ceased about the eighteenth. During this time there was an extremely rapid decrease in the size of the glands. With cessation of pus there was a corresponding slackening in the retrogression of the glands which did not cease entirely, but has continued until the present time.

Fig. 2.—Patient, July 1, 1915, showing results of treatment.

Constitutionally, except for a dragging sensation at the site of the scar, the patient feels perfectly well, and is doing his own chore work on the farm.

The question arises as to what influence the pus infection had on the glands. There is no doubt that the toxins from infectious processes at times exercise a profound effect on newly formed tissue, as illustrated by the use of Coley's toxins in sarcoma. The fact, however, that the glands were decreasing under the vaccine treatment, and continued to do so after the infection had cleared up, and that the results are identical with those of Billings and Rosenow, leads us to believe that while the appendicitis may have been a favoring influence, the main results were due to the vaccines.

POLYPUS OF FALLOPIAN TUBE

Lawrence H. Hoffman, M.D., San Francisco
Fellow of the American College of Surgeons

Polypus of the fallopian tube, although mentioned in textbooks of gynecology, is rarely encountered in pelvic surgery. The condition may exist without causing any symptoms and pass unrecognized until it reaches a size to be discovered by palpation during some routine pelvic examination or until the occurrence of rupture of the containing fallopian tube demands operative procedure.

The case I report is interesting on account of its rarity and its simulation of ectopic gestation. I have searched the literature and can find no cases of that nature on record.

History.—The patient, aged 30, married several years, presented herself to Dr. Oscar Mansfeldt with the following history. She had never become pregnant although she had used no preventive measures. Menstruation had always been regular, moderate in quantity, about four days' duration. The April and May menses were normal. The June 1 period was on time but patient menstruated several days longer than usual, with a day's cessation, and a few days of a dark bloody discharge with clots, accompanied by colicky pains in the lower abdomen and slight abdominal distention.

Examination, June 18.—The cervix was conical, of normal consistency. The uterus was normal in size, in axis of pelvis not fixed. A boggy semifluctuating mass was palpable in Douglas' culdesac. The right adnexa was palpable and no abnormality was felt. A mass was felt in the left parametrium about 5 cm. in diameter, immobile, separable from the uterus and tender to the touch. The findings were corroborated by an examination under narcosis June 18, and I was called in consultation to verify the findings. A diagnosis of ectopic gestation was made and operation was decided on and performed June 19.

Operation.—When the peritoneal cavity was opened, by median abdominal incision, some fluid, blood and clots escaped. The left adnexa was represented by a mass 5 cm. in diameter, embedded in blood clots, and ruptured on its superior margin near its distal end. This adnexa was removed typically and the clots evacuated from the peritoneal cavity. The abdomen was closed in four layers. Recovery was uneventful.

The pathologic report, made by Dr. Ophüls, was of rupture of the fallopian tube, which contained a polypus, 2 cm. in diameter, and coagula.

When discussing the case, the existence of ectopic gestation was weighed but the fact that there had been no amenorrhea and that uterine enlargement was absent caused a doubt in our minds. The other symptoms and physical signs were so suggestive of extra-uterine pregnancy that we felt an exploratory operation was demanded, knowing the dangers of such a condition. Until the pathologist's report was received the findings were taken as ectopic pregnancy, and great was our surprise when the true nature of the lesion was disclosed.

530 Butler Building.

Preventive Medicine.—Within the past thirty years in this country the mortality from tuberculosis has been reduced more than half, and with scarlet fever and diphtheria the results have been more striking. Within the past ten years the average life has been increased four years.—Vaughan.

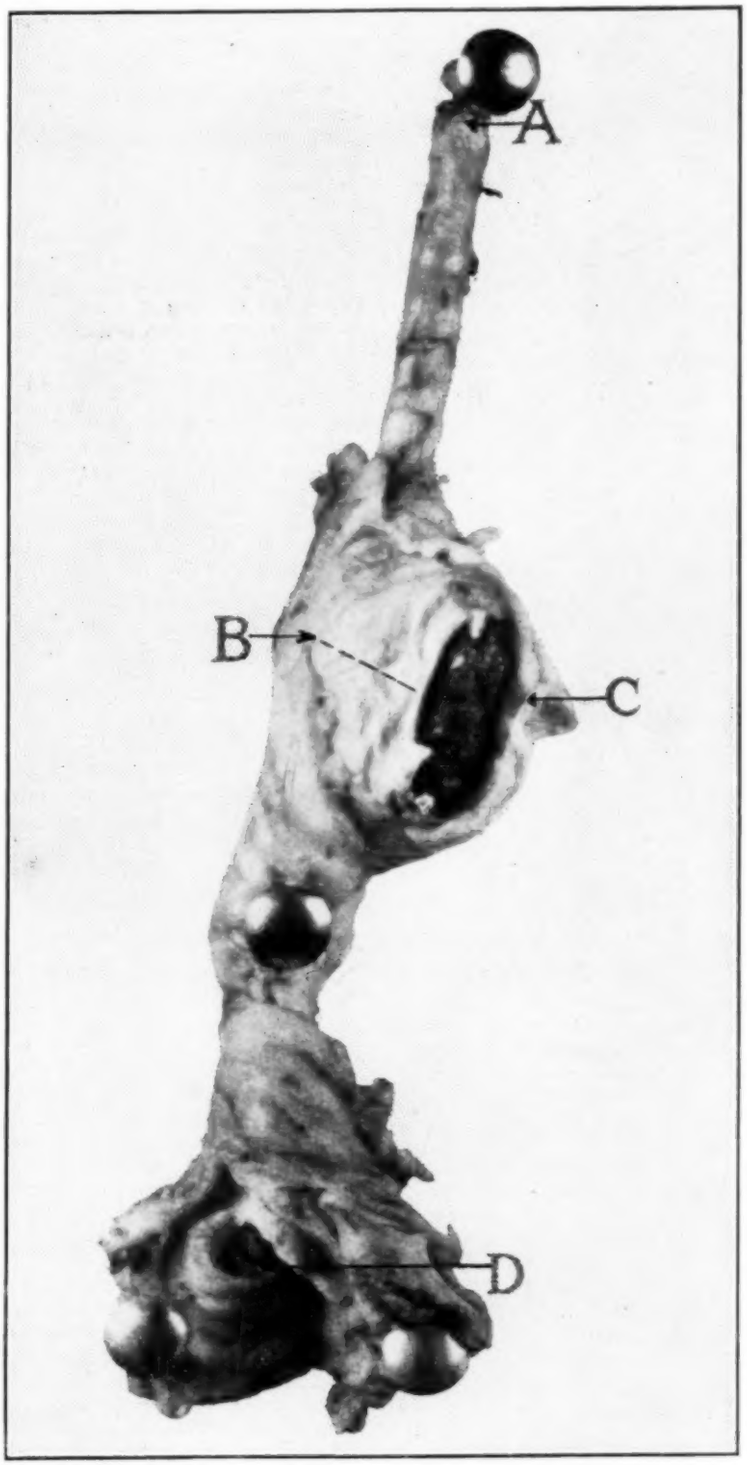
AN UNUSUAL APPENDIX

W. W. GRANT, M.D., DENVER

The following case is reported because of its interesting and unusual clinical history and remarkable character and dimensions of the pathologic specimen:

G. H., aged 27, came to Colorado in 1907 for a mild tuberculous infection, it is stated, of the apex of the right lung. In 1908 after a year of partial invalidism, he was pronounced well. He has had persistent constipation for ten years with periodic loss of appetite and occasional gastric disturbance, without any assignable cause. For several years past he has been superintendent of mining operations at Creede, Colo. On the night of May 15, 1915, he was taken suddenly with severe pain over the abdomen, which continued for six or eight hours. It was followed by marked tenderness in the lower abdomen for four or five days. Notwithstanding the severity of the attack and tenderness following, he was up and about, and resumed his labors immediately, though he could not straighten his body, on account of discomfort induced, for several days. He then consulted a local physician at his office, who took his temperature and reported it normal. He had no further reminder of trouble until July 25, when, in bed at night, he had the second attack of more intense, acute pain which lasted eight hours. He called no physician and the following morning was up and about as before in every particular.

In ten days, feeling that the trouble was serious, he came to Denver and consulted, at first, two distinguished internists. One thought, from the personal and clinical history and the localized swelling with some glandular involvement in the abdominal wall about the mass, that it was probably tuberculous. The other thought it was connected with the appendix in some unusual way, but its exact character doubtful. He was then referred to me. A well-defined mass, the size of the clenched fist, just below the umbilicus, with its center at the right border of the right rectus muscle, was manifest on palpation. A few slightly enlarged lymph glands could be felt about the mass in the wall of the abdomen. Only slight tympanitis existed. The temperature was 98, and pulse normal. The mass was fairly well circumscribed and extended deep into the cavity of the abdomen. The clinical history and immediate subsequent events were so characteristic of the pain and history of a perforative appendicitis with protective adhesions, that I had no doubt as to the diagnosis though recognizing that tuberculous history might have had some influence in the case.



An unusual appendix. Length on removal, 10 inches. *A*, cecal end; *B*, intestinal adhesions; *C*, concretion: capsule split open to show stone; *D*, distal opening of appendix with perforation.

I operated on him August 7 at St. Luke's Hospital. Temperature 98.2. Incision to the right of the rectus. With the opening of the peritoneum about a pint of bloody serous fluid escaped, due, doubtless, to the pathologic condition of the omentum and partial constriction of the adherent intestines. There were no enlarged mesenteric glands, or other evidence of tuberculosis. The ill-defined mass was covered by partially gangrenous omentum in front, and on all sides was protected by closely adherent small intestines extending to the posterior wall of the peritoneum. By delicate dissection the intestinal and mesenteric adhesions were released from the tumor. During this performance about 1 ounce of colon bacillus pus gradually escaped, but it did not enter the peritoneal cavity. When the body of the tumor was freed the upper portion of the appendix was stripped of adhesions, and as soon as severed from the intestine a very mobile cecum was observed, with no adhesions above the stump of the appendix. When removed the latter measured 10 inches in length. A drainage tube was inserted and left for five or six days. The temperature was normal throughout the convalescence and the recovery was uneventful.

The exterior of the concretion is a hard shell about one sixteenth of an inch thick, with a distinct metallic ring when tapped with a scalpel. The color is yellow, resembling that of cholesterin, and the surface, as shown in the illustration, is thickly studded with sharp spines resembling a cockle burr. The interior was of a soft, putty-like consistence and was not further examined as I desired to preserve the specimen, the size of a large hickory nut, intact. I have never before seen a case with this pathologic condition, of years' duration doubtless, with such a negative clinical history with the exception of the two brief attacks of pain due to perforation. On September 4 he returned to Creede feeling quite well and the wound had perfectly healed.

Mack Block.

TWO FAVUS FAMILIES

J. E. Lane, M.D., New Haven, Conn.

Favus is not a rare disease in this country and there are usually a few cases in all of the dermatologic clinics of our larger cities. In the parts of Europe where it is most prevalent it is a disease of the country rather than of the city. This is probably due to the fact that the families of the peasants live more closely crowded together and under less sanitary conditions than does our rural population. Still the fact that favus has never become common in this country is largely due to the rigid exclusion by the federal authorities of immigrants affected with it.

Fig. 1.—Favus in a family of nine, five of whom had the disease.

The following cases illustrate the effect of not properly treating every patient with favus as soon as it is discovered, and the fact that the importance of such treatment is not sufficiently realized in places where it is a rare disease. They also illustrate the fact that favus frequently originates in this country. The impression is still prevalent among many physicians that nearly all cases of favus are found in immigrants, though as long ago as 1896, this was shown by Wende of Buffalo not to be the case. Another point of interest is the rather unusual number of individuals of the same family affected, and the extent of the disease in them.

A few months ago my attention was attracted to the subject by a case of favus in a boy 13 years old, who for five years had been occasionally coming to the dermatologic clinic of the Yale Medical School. A visit to his home disclosed the fact that there were nine children in the family, of whom four others, children aged 10, 8, 6 and 2 years, were affected. The boy of 13 was nearly bald. The disease in the child of 2 was not extensive. In the others, practically the whole of the scalp was involved. None of them had been treated at all except the boy of 13. All of these cases developed in this country, the parents having come from Italy twenty years ago. The extent of the involvement is shown in Figure 1, the photograph having been taken after the removal of the crusts. (In neither family was I ever able to get all five of the children together for a photograph.)

The second family was also Italian, and the parents also came here about twenty years ago. It was discovered by the Visiting Nurses' Association, which had been caring for the other family. In this family there were five children of the ages of 12, 8, 6 and 4 years, and a baby of 10 months. All of the children had favus, and they presented a disgusting appearance, well shown by Figure 2, which was taken before any attempt at cleaning had been made. The scales on the girl's dress, which fell when her cap was taken off, show the ease with which she could scatter the disease if opportunity offered.

All of these cases originated in this country, and I subsequently found out that some of them had been discovered more than five years previously. As favus is not a reportable disease, nothing was done about them, and it was allowed to spread, with the results described. Children with favus are excluded from school, so with the exception of the boy of 13, who at some time or other had been in school for about six months, none of them had ever been in school at all. With the same exception, none of them had had any treatment.

Fig. 2.—All of the five children of this family, of whom four are shown, had favus.

Such a condition not only deprives its victims of an education, but if allowed to continue, deprives them, on account of their disgusting appearance, of practically all means of earning a living until the disease has eradicated itself, which in some cases is not before old age.

It is obvious that favus should be made a reportable disease, and that each case should be properly treated as soon as it is discovered.

Partial Refrigerating Process to Aid in Transportation of Milk.—Our Italian exchange, *Pediatria*, describes a method for keeping milk for long transportation, which has been introduced into the Brazilian province of Minas-Geraes, noted for its dairies. The principle is to cool the milk after pasteurization and pour it into a 300-quart can already containing blocks of frozen milk. The milk is frozen in blocks weighing 22 or 33 pounds, and ten or twelve of these blocks are placed in the large can, which has insolating walls, and the chilled and pasteurized milk is poured over them. Milk which has been thus sealed is said to keep for fifteen or twenty days. When the can is opened the milk is found homogeneous and is said to resemble in every respect the freshly drawn product.

New Instruments and Suggestions

A NEW NECK BANDAGE

A. G. BETTMAN, M.D., PORTLAND, ORE.

Realizing how difficult it is to apply a dressing high up on the back of the neck and keep it there by the means generally used, I have devised a very simple bandage to accomplish this object by the following procedure:

Fig. 1. — Dressings, cardboard and two turns of bandage in place.

Fig. 2.—Side view of completed bandage.

Put on the dressings in the usual way. Apply a 2-inch bandage twice around the neck, folding it on itself lengthwise the second time around.

Cut a piece of stiff cardboard of suitable size and shape, as shown in Figure 1. Place the lower end of the cardboard in the fold made in the second turn of the bandage. Continue bandaging over the cardboard, fixing an occasional turn over the top. Figure 2 shows the completed bandage.

This bandage I have found very serviceable, especially where the patient objects to having the bandage around the forehead, and adhesive plaster is unsatisfactory.

The advantages are: The bandage is easily and quickly applied. It looks neat and can be made as high as required. It holds the dressings in place. It is not objectionable to the patient. There is no adhesive plaster to annoy the patient.

809 Stevens Building.

A SELF-ILLUMINATED BERGER LOUPE*

EDWARD A. SHUMWAY, M.D., PHILADELPHIA

I desire to show a simple modification of the Berger loupe, which consists in the attachment to its side of a brass clip to hold the small flashlight, which has the appearance and size of a stylographic pen. The light has a small, one-cell battery, which illuminates a tungsten filament lamp, and has a permanent turn-on arrangement. It can be purchased at any of the electrical supply houses, or instrument shops.

The light rays from the lamp are projected toward the focal point of the Berger loupe, and give sufficient light to illuminate satisfactorily the eye under examination. It has been of especial value, however, in the removal of foreign bodies from the cornea, and in pulling out delicate misplaced cilia from the eyelids, as it gives an independent source of illumination, and leaves both hands free for manipulation of the eyespud, and for holding the patient's eyelids. It has also the advantage of being independent of wires to batteries or rheostats, and can be readily removed from the loupe when illumination is not required.

The Zeiss loupe has also a lamp to illuminate the eye, but the instrument is much more expensive, the lamp requires a separate battery or rheostat, and moreover, the focus is rather short—1¼ inches—while the Berger loupe focuses at about 2 inches, giving more space in which to move the spud, or other instrument.

Other arrangements have been employed to illuminate the eye in removing foreign bodies, but they are not sufficient, when the operator requires binocular magnifying power to assist his near sight, and self-illuminated spuds have been unsatisfactory, in my experience, as the illumination is not constant, but varies with the distance of the spud from the eye. Moreover, it is very difficult to get patients to hold their eyes still, as they seem to fear a shock of some sort, when the light from such an instrument, connected by wires to a battery or rheostat, approaches the eye.

The ordinary tungsten lamp furnished by the Ever Ready Company has a plain glass top. For more powerful illumination I have replaced it by an imported lamp, which has a small magnifying lens fused on the top, by means of which the light rays are better concentrated. This makes the apparatus more useful in dispensary work, especially in the examination of inflammatory conditions of the anterior portion of the eyeball or its adnexa, making it usually unnecessary to take patients to a dark room. The loupe has been cut out on each side to remove the obstruction to lateral vision, of which complaint is occasionally made, but this is not a new feature.

Self-illuminated Berger loupe.

The modified apparatus can be obtained from Wall & Ochs, Philadelphia, who will attach the clip and lamp, or furnish the entire outfit.

2007 Chestnut Street.

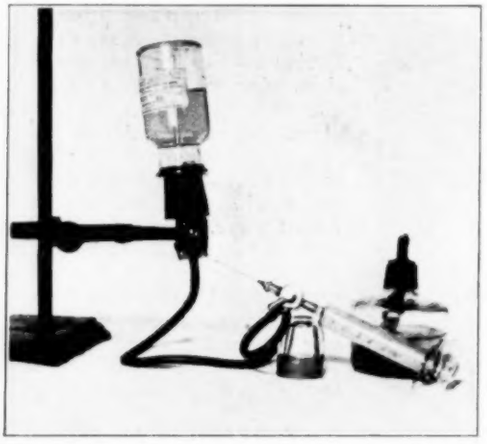
* Shown at the meeting of the American Ophthalmological Society, New London, Conn., July 6, 1915.

RAPID INOCULATION OF LARGE NUMBERS WITH TYPHOID IMMUNIZING VACCINE

E. W. Cleary, M.D., Sugar Pine, Calif.

The immunization of large forces of laborers to typhoid fever by inoculating each individual with the routine series of three doses of prophylactic vaccine is a problem which presents distinct difficulties to the physicians who have to meet it. It is not at all to be compared with the task of the army medical officer, whose patients march with military precision at the hour and to the place which he dictates.

Many workingmen who do not object to vaccination are too inert to go to the doctor's office to be inoculated, or come



Apparatus used in rapid inoculation of typhoid prophylactic vaccine.

straggling in at irregular hours, forgetting their appointments for successive doses, and in sundry and several ways dragging out the process of immunization to an impracticable length. Yet a large majority must be immunized in order to render their community reasonably safe. To get such a majority it is necessary to go to the men and inoculate them when they are gathered together for work. Employers naturally object to shutting down a large plant to give opportunity for wholesale vaccination of employees, and, in consequence, vaccination must be done either during the noon hour or at night as the men are leaving their work.

A method of vaccination practicable under such limitations must be safe, simple and rapid. It must be safe outdoors or in dusty buildings, simple enough to be carried out by one physician with untrained assistants, and rapid enough to accomplish the inoculation of a large number in a very short time.

I have used the apparatus shown in the illustration in about 300 cases with entire satisfaction. The apparatus consists of a 5-c.c. Lüer syringe, a three-way metal stopcock, a platinum intramuscular needle (the smaller needles were found too fragile), a No. 18 French soft rubber catheter and a cork pierced by one long and one short glass tube. These articles are all sterilized by boiling. The vaccine bottle used was the 2-ounce, wide-mouthed, prescription bottle in which the sterile vaccine was supplied. When one such bottle was emptied, the cork connected to the syringe was simply transferred to a full bottle. The illustration shows arrangement of syringe, stopcock and needle with catheter connected to a third way of stopcock and, by its other end, to the short glass tube passing just through the cork of the vaccine bottle. The longer glass tube extends above the surface of the vaccine in the inverted bottle, and serves as a vent. If there is any question of contamination of the vaccine from air entering through this vent, it can be loosely plugged with sterile cotton. When one is working in a draft, it is best to provide a shield for the alcohol lamp used for flaming the needle.

When one is vaccinating with this apparatus, three assistants are employed. The first rolls up the sleeve and touches the arm with tincture of iodin, the second shakes the inverted vaccine bottle constantly to insure an even suspension of bacteria, and the third keeps the records. With the third way of the stopcock open, the syringe is filled from the vaccine bottle, then the third way closed, and the channel to the needle opened by giving the lever of the cock a quarter turn. As the vaccine enters by gravity into the syringe through the larger opening in the stopcock, absolutely no air is drawn into the syringe, and the plunger may be pulled back with one rapid stroke, filling the syringe barrel accurately to the 5-c.c. mark. One c.c. of the vaccine is injected just beneath the skin through the iodized area over the insertion of the deltoid. The needle is flamed over the alcohol lamp before each injection. In using the 5-c.c. syringe, five men are inoculated before the syringe is refilled. It was found that by doing this, five or more injections could be made per minute, thus giving little time for uneven dosage to result from settling in the syringe. When injections are made slowly, it is better to use a small syringe and fill for each injection.

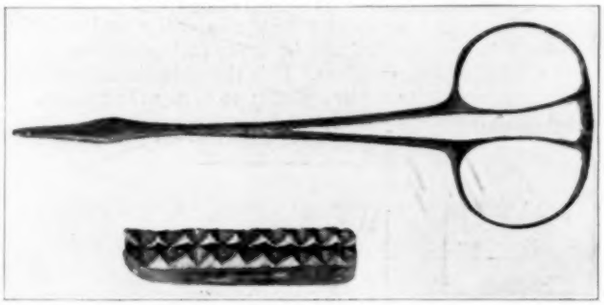
The advantages of this method over the method in which the vaccine is drawn into the syringe by thrusting the needle through the rubber cap of the vaccine bottle are obvious. Any one who has filled a vaccine syringe by the last-mentioned method knows that more or less air is drawn into the syringe, and that on this account much time is consumed in adjusting the syringe load for accurate dosage.

The rapidity of the method described in this paper made it possible, without compulsion, to immunize so large a proportion of the working men in the community in which it was used as to insure against a repetition of such a disastrous typhoid epidemic as had paralyzed industry and taken a toll of several lives from the neighborhood several years before. The extreme simplicity of the operation and the rapidity with which it can be done so minimizes the conception of the serious nature of the process in the minds of the workingmen that many submit who would recoil from a slower or more complicated procedure. The fact that out of a total of nearly 900 doses injected not a single infection, nor even a single unduly severe reaction, occurred evidences the safety and accuracy of the method. The Gay-Claypole vaccine furnished by the California State Board of Health was used.

NEW ARTERY FORCEPS

Carleton Dederer, M.D., Los Angeles
Clinician in Surgery, Los Angeles Department, University of California Medical College

Kocher overcame the difficulty of having the jaws of artery forceps slide across each other laterally by devising the "mouse tooth" at the end. In this pair of forceps nature



New artery forceps and magnified model of a portion of one jaw.

is imitated by the formation of jaws and teeth which bite firmly without incising. This has been done by making on one jaw a double row of pyramids quite similar in shape to the famous Egyptian pyramids and on the other jaw a series of complementary impressions, all of which give a bite which can be regulated in intensity by the degree of pressure applied.

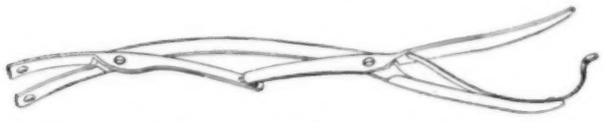
This forceps is 6½ inches long and has the new style handle[1] eliminating all acute angles where sutures, ligatures and instruments usually catch.

1. Dederer, Carleton: Time-Saving Forceps, The Journal A. M. A., April 17, 1915, p. 1318.

TONSIL FORCEPS

W. P. MEGRAIL, M.D., WHEELING, W. VA.

This instrument is curved throughout its entire length so that a large part of it and the operator's hand is entirely outside the line of vision, which gives an unobstructed field for operation. It has a compound lever handle which makes a firm grip on the tonsil with a very slight grasp of the fingers. The handles work close, permitting the tonsillotome or snare to be readily passed over them. It also may often be found to be a useful instrument for extracting foreign bodies from the pharynx or esophagus.



Tonsil forceps which may be used for extracting foreign bodies from pharynx or esophagus.

Penn and Zane Streets.

A SIMPLE METHOD OF TRANSFUSION IN HEMORRHAGE OF THE NEW-BORN, WITH REPORT OF A CASE

W. S. HOWARD, M.D., CHICAGO

The only apparatus required in this method is a 20-c.c. ground glass syringe with a needle 2 or 3 inches long.

After sterilization of the syringe and needle, 2 c.c. of a 10 per cent. sodium citrate solution is drawn into it. The needle is then inserted into the vein of the donor, the syringe filled and withdrawn. The anterior fontanel region of the infant having been previously cleaned with alcohol and tincture of iodin, the needle is pushed into the superior longitudinal sinus and the syringe emptied. This may be repeated several times if necessary. A smaller needle than the one for the sinus may be used on the vein of the donor if desired.

For entering the sinus the needle is inserted at the superior angle of the fontanel at an angle of about 25 degrees with the scalp. When the needle enters the sinus there is a distinct sensation of decreased resistance perceptible. The sodium citrate solution is used to prevent the rapid coagulation of the blood. Two c.c. of a 10 per cent. solution will make the entire contents of the syringe contain only 1 per cent. of sodium citrate, which has apparently no deleterious effect on the blood.

The advantage of this method is the extreme simplicity of technic. It can be done at almost any place, on short notice, with very simple apparatus, and does not require any great amount of surgical skill for its execution.

The use of the longitudinal sinus in infants for aspiration, infusion and transfusion has been recommended by Helmholz (*Am. Jour. Dis. Child.*, September, 1915, p. 194) and Unger (THE JOURNAL, Feb. 13, 1915, p. 582). Unger's method for transfusion requires a special apparatus which is described in the article referred to.

REPORT OF CASE ON PEDIATRIC SERVICE OF DR. F. X. WALLS

Baby B., boy, colored, was born at St. Luke's Hospital, Sept. 7, 1915. Labor normal. Birth weight 6 pounds, 11 ounces. Apparently normal in every respect. The mother is a quadroon, aged 30. Had measles during infancy. Has always been in good health ever since. Has had four children and one abortion at third month. All labors have been normal. Second child died at age of 2 months, of malnutrition. Had the abortion in 1910, one year following the birth of the third child. Father is colored, aged 44; has always been well with exception of slight gastric disturbances.

Patient was apparently normal until the morning of Sept. 9, 1915, when there was a very free hemorrhage from the bowels. This was of a rather bright red color and estimated to be at least an ounce in quantity. At 11:45 a. m. a similar hemorrhage occurred. The infant at this time seemed to be in very poor condition. It was very restless and irritable. There were convulsive movements of the arms and legs, and it yawned constantly. After consent of Dr. Walls had been obtained, 18 c.c. of blood were transfused into the longitudinal sinus by the method described above, the donor being one of the nurses. At 12:40 p. m. another free hemorrhage occurred, and again 18 c.c. of blood were transfused, the donor this time being the father. By this time the baby was in a more apathetic state. It promptly regurgitated all food, the emesis being of a dark color. At 5 p. m. the third free hemorrhage occurred, and 18 c.c. of blood were again transfused from the first donor.

Following this there were slight passages of tarlike stools but no more hemorrhages.

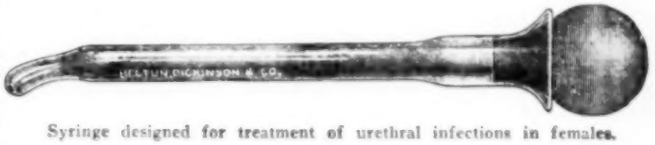
The following day the stools were yellow, the emesis had ceased, and the general condition was much improved. There have been no further evidences of hemorrhage up to the present time. The infant nurses well, has no discomfort following, and is apparently normal in every respect.

St. Luke's Hospital.

URETHRAL SYRINGE

F. A. VAN BUREN, M.D., OMAHA

This syringe was designed for treatment of the female urethra, especially in gonorrheal infections. It is difficult to get a satisfactory syringe, of the piston type, which is positive in action. If the piston is tight enough to insure nonleakage the action is so stiff that one cannot accurately control the pressure or the amount of medication injected. This instrument possesses these advantages over the push type: It is inexpensive, easily cleaned and sterilized by boiling, and is positive in action for the life of the instrument as new bulbs may be obtained. A small hole in the neck of the bulb prevents medication from entering the bulb, thus permitting injection from any position; the tip has the correct curve and caliber for the female urethra. A little pressure against the meatus prevents the fluid escaping, dilates or irons out all folds in the mucosa, thus permitting the fluid injected to reach all parts; more pressure will force the fluid into the bladder if desired.



Syringe designed for treatment of urethral infections in females.

468 Brandeis Theater Building.

Health on the Farm.—The death rate in the rural communities of New York state is higher than that of the crowded city of New York. It still amounts to about 15 per thousand since 1900, while in the city of New York the death rate has dropped about one-third in the last fifteen years. The New York State Department of Health in *Health News* has published papers by various experts to enable the farmer and the country dweller to improve health conditions. It is said that the farmer must be his own sanitary engineer and board of health to a large extent. Among the things he must look out for are proper disposal of wastes, pure water and milk supplies, freedom from insect pests, habits of personal cleanliness, and moderation in all things. The bulletin contains papers by L. H. Bailey on "Good Health and Good Farming," by Henry N. Ogden on "The Farm Water Supply," by Theodore Horton on the "Disposal of Human Excreta and Sewage of the Country Home," by Dr. Alvah H. Doty, New York, on "The Extermination of the Mosquito," and by Dr. William B. May, Albany, on "Health Conditions on Picnic Grounds."

Therapeutics

PLANT POISONING

PRIMROSE

This poisoning is not infrequent, though generally perhaps it is unrecognized, the condition being called acute eczema.[1]

Sharpe[2] thinks that the dermatitis not infrequently seen on the hands of milkers may sometimes be due to the fact that the poisonous substance of the wild primrose is carried on the udders of the cows.

It has been noted that primrose plants do not readily become infected with insects. Montgomery[3] thinks that the cause of this immunity may be the poison exuded by the plants.

The hands and arms are the parts most attacked by the primrose, and the symptoms are burning, puffing, and at times small pin-point blisters. There is also a good deal of itching.

The primary treatment is to recognize and remove the cause. Magnesium sulphate solutions are generally satisfactory in relieving the inflammation. As is true of all acute skin eruptions, catharsis and a milk and cereal diet will hasten the recovery.

IVY, OAK AND SUMACH

While on the subject of plant poisoning it may be well to recall the experimental work done on this subject by Adelung[4] two years ago. Though these plants differ botanically, Adelung finds that their poisonous juices are chemically identical, and this poison is nonvolatile. It has been shown that as little as $\frac{1}{1000}$ of a milligram may produce a dermatitis.

It is now known that the poison of the ivy is of a resinous nature.[5] As it is generally agreed by analysts that the poison is nonvolatile, the assertion that certain susceptible persons may be poisoned by simply passing by the plants remains to be explained. It is certain that neither the pollen nor the plant hairs are toxic,[6] so that direct transmission is the only plausible explanation. As previously shown,[7] Adelung also found that the poison was purely a local one. It is not distributed by the blood.

The latent period or length of time from the infection to the development of the dermatitis is shorter on the parts of the body where the skin is the thinnest, such as the face and the inner sides of the arms and wrists. As is well known, there is a varying susceptibility of individuals, though there seems to be no natural immunity (as shown experimentally). It is a popular idea, however, and seems to be a fact, that some persons may handle the poison ivy, for instance, with impunity. On the other hand, susceptible persons seem to vary as to their susceptibility in different seasons or in different years. This may be entirely due to the variability of the irritant poison.

Adelung found that the rhus plant would yield a pure toxin of about $\frac{1}{1000}$ of its weight. He believes this toxin has a selective action for the epithelial cells. Experimentally Adelung could not demonstrate that immune bodies were formed in the blood or that there were any immune bodies contained in the blood of an individual who was more or less immune to the poison.

Treatment.—If, immediately after exposure to the poison, the parts supposed to be affected are washed with soap and hot water, dermatitis generally will not occur. If it is known that just one small part of the body, as one part of the hand or finger, has touched the poison, the full strength tincture of iodin applied to the part will destroy the poison, according to Adelung.

Protection against poisoning is more or less furnished by oils or fats, as cottonseed oil, smeared over the exposed parts of the body. Any one who is susceptible to such poisoning and knows that he has been exposed, should use, besides the local soap and water, a general hot bath, and should be sure that the possibly infected outer clothing is not again worn until thoroughly brushed and aired.

A strong solution of magnesium sulphate is perhaps one of the best local applications for the dermatitis when it develops. It relieves the itching and limits the inflammation. Other more or less successful treatments are oil or ointment containing ichthyol, potassium permanganate solutions, or the old lead and opium wash. Many people, however, are very susceptible to lead solutions unless they are very weak, and also if the skin is broken too much absorption of lead may occur. As just advised, the magnesium sulphate solution is probably the best treatment. As soon as the acute inflammation is over, any simple talcum powder, or powdered corn starch, is very soothing to the skin.

1. Foerster, O. H.: The Journal A. M. A., Aug. 20, 1910, p. 642.
2. Sharpe, H. A.: The Journal A. M. A., Dec. 14, 1912, p. 2148.
3. Montgomery: California State Jour. Med., August, 1913, p. 305.
4. Adelung: Arch. Int. Med., February, 1913, p. 148.
5. Stevens and Warren: Am. Jour. Pharm., November, 1907, p. 518.
6. Warren: Am. Jour. Pharm., December, 1913, p. 547.
7. Chestnut: Farmers' Bulletin 86, U. S. Dept. Agric.

SUDDEN HEART FAILURE

A correspondent requests a discussion of "an efficient treatment for sudden cardiac failure."

No dogmatic rules can be laid down for the treatment of this condition. The following are suggestions:

1. Put the patient flat on a bed, with the feet elevated, unless it is a case of cardiac dyspnea, in which case he should recline on several pillows.
2. Put a hot water bag over the cardiac region.
3. Use smelling salts for quick momentary stimulation.
4. Give one-half a teaspoonful of aromatic ammonia, in twice the amount of water, if it is at hand.
5. Strychnin sulphate, $\frac{1}{30}$ grain, may be given hypodermically as a stimulant to the central nervous system and to the cardiac nerves.
6. Hot coffee may be given by the mouth.
7. An injection of the contents of an ampule of camphor in oil may be given intramuscularly.
8. Epinephrin may be given in a dose of 5 drops on the tongue, which may be repeated in half an hour if advisable.

All of the foregoing are quick-acting treatments.

9. A little slower than these is the blood-pressure-raising substance of the posterior lobe of the pituitary gland. An ampule of this liquid may be injected hypodermatically, and repeated in two or three hours, if needed.
10. A little slower to act are the contents of a sterile tube of strophanthin, given intravenously. This must not be given if the patient has been taking digitalis, and should rarely be repeated.
11. Slow to act, but projecting its influence for nearly twenty-four hours, is digitalis, best in the form of an ampule of digipuratum fluid, given hypodermically. This should ordinarily be given but once

in twenty-four hours, and certainly not repeated for twelve hours.

12. With low blood-pressure and a fairly strong heart an aseptic preparation of ergot, given intramuscularly, is often of great value in aiding to save a patient with heart failure.

It is hardly necessary to urge that the cause of the heart failure be determined. A quick blood count will show whether or not there is internal hemorrhage.

Of course it is not necessary to use all of the above-mentioned drugs, and they are only suggestions.

More detailed discussion of "Acute Heart Attacks" and of "Shock" will be found in THE JOURNAL, "Disturbances of the Heart," Dec. 21, 1912, p. 2256, and March 29, 1913, p. 996, respectively. A short discussion on "Heart Tire" appeared in this department, Oct. 2, 1915, p. 1184.

HEMOPHILIA

In a severe case of hemophilia in a child of 8, after having carried out the measures usually employed without satisfactory results, a physician asks for suggestions as to treatment and references to recent literature. The following may be offered:

When the part can be reached externally, bleeding may be stopped by pressure, by suprarenal solutions, by hydrogen peroxid solutions, sometimes by gelatin, by thrombokinase in the form of extract of lymph glands, thymus, testis or other source of nucleoprotein, and by many iron salts. It is not desirable to use iron if it can be avoided on account of the disagreeable coagulum that forms and the danger of infection and suppuration underneath.

Bleeding from the stomach may be temporarily stopped by ice, suprarenal solutions, and tannic acid.

The tendency to bleed is due to a blood dyscrasia, and can be prevented only by a change in the character of the blood. Calcium, in the form of calcium lactate or calcium glycerophosphate, may be of value, and its administration for a few days may sometimes prevent profuse bleeding in bleeders, even during or after an operation. A diminished amount of calcium in the blood may be due to increased loss of calcium. Overactivity of the ovaries in adult females, it is said, increases the loss of calcium and the bones become soft. The parathyroids are also believed to have something to do with calcium supply and elimination. It is possible that feeding parathyroid gland substance in hemophilic children may be of value.

The feeding of suprarenal gland has been unsuccessful. The blood-vessel-constricting principle of the suprarenal gland is absorbed from the mouth or mucous membranes, or will act for a short time when injected subcutaneously, but suprarenal, as a whole, when fed, seems to be of little value. The blood pressure raising stuff does not act after the suprarenal substance has been swallowed into the stomach; at best, it acts only locally. Though in normal individuals, especially women, thyroid substance tends to promote bleeding, instances occur in which it seems valuable in stopping bleeding. Just what other glands are stimulated by feeding thyroid, with the effect of changing noncoagulable blood, is not known. It is, however, a clinical fact that not infrequently profuse bleeding is stopped by the feeding of thyroid.

As pituitary substance from the posterior portion of the gland is known to stimulate the suprarenal glands, it might be logical to feed this substance.

The most successful immediate treatment of profuse hemophilic bleeding is blood serum. The serum may be prepared from any human being, a relative often preferred, whose blood shows normal coagulability. A number of cases of successful treatment with blood serum are now on record.

Horse serum also seems to be successful, given subcutaneously, as is diphtheria antitoxin.

The following articles on hemophilia may be consulted:

Normal Blood-Serum in Hemophilia, Queries and Minor Notes, THE JOURNAL, Nov. 30, 1912, p. 1993.
Blood-Serum in Hemophilia, Current Comment, THE JOURNAL, Oct. 26, 1912, p. 1549.
Schloessmann, H.: Tissue Extract in Treatment of Hemophilia, *Beitr. z. klin. Chir.*, August, 1912; abstr., THE JOURNAL, Oct. 19, 1912, p. 1495.
Clough, F. E.: Interesting Case of Hemophilia Treated with Repeated Injections of Blood-Serum, THE JOURNAL, July 12, 1913, p. 121.
Claybrook, E. B.: Case of Hemophilia, THE JOURNAL, Oct. 28, 1912, p. 1540.
Traver, A. H.: Hemophilia Treated with Human Blood-Serum, THE JOURNAL, Jan. 4, 1913, p. 44.
Judd, A.: Decanted Blood-Serum after Severe Hemorrhage and in Hemophilia, Report of Two Cases, *Med. Rec.*, New York, April 17, 1915; abstr., THE JOURNAL, May 1, 1915.
Dolmage, G. F.: Case of Hemophilia Treated with Horse Serum, *Jour. Iowa State Med. Assn.*, March, 1915.

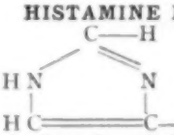
New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

HISTAMINE HYDROCHLORIDE.—



$H\,C{=}{=}C{-}CH_2CH_2NH_2HCl$.—The hydrochloride of the base beta-iminazolylethylamine (histamine). Histamine is closely related to histidine, from which it differs in that one molecule of carbon dioxide has been eliminated.

Actions and Uses.—Histamine hydrochloride has a powerful contractile action on certain muscular fibers and a strong vasoconstrictor action. The available evidence does not warrant a recommendation for its therapeutic use, but it is a valuable reagent for the standardization of pituitary and similar preparations.

Histamine was first prepared synthetically from iminazolylpropionic acid by Windaus and Vogt in 1907 (*Ber. d. deutsch. chem. Gesellsch.*, 1907, xl, 3691); it was then prepared by bacterial putrefaction of histidine in 1910 by Ackerman (*Ztschr. physiol. Chem.*, 1910, x, 504) and isolated from ergot in 1910 simultaneously by Kutscher (*Zentralb. f. Physiol.*, Vol. 24, p. 163) and Barger and Dale (*Pharm. Jour.*, June 4, 1910, p. 710; June 18, 1911, p. 757).

Histamine hydrochloride melts at 240 C. (Corr.).

When picric acid is added to an aqueous 1 per cent. solution of histamine hydrochloride, histamine picrate is precipitated promptly; the precipitate should melt at 234 C. (Corr.). Any impurity present in the histamine hydrochloride will prevent or at least very much retard the precipitation of this picrate.

If a 1:1,000 solution of histamine hydrochloride is made alkaline with sodium hydroxide and a solution of diazobenzosulphonic acid (Pauly's reagent) made alkaline with sodium hydroxide be added, a cherry red color appears.

If a 1:1,000 solution of histamine hydrochloride is mixed with an excess of bromine water, then boiled until the bromine is evaporated and sodium hydroxide added to the solution, a black discoloration occurs.

Proprietary Preparations:

IMIDO Roche.—A name applied to histamine hydrochloride.

Manufactured by F. Hoffmann-LaRoche and Co., Basel, Switzerland (Hoffmann-LaRoche Chemical Works, New York). No U. S. patent or trade-mark.

Ampules Imido Roche.—Each ampule contains 1.1 Cc. of an aqueous 1:1,000 solution of imido Roche (1 Cc. contains 1 mg.).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 16, 1915

THE PROBLEM OF RURAL HEALTH ADMINISTRATION

The problem of securing efficient administration of public health laws is especially difficult in the rural districts. City and town can today obtain the best health service for which they are prepared to pay. The small community, on the other hand, unless the circumstances are exceptional, cannot command the various kinds of expert knowledge, medical and sanitary, chemical, bacteriologic, engineering and statistical, which are essential for the adequate handling of its problems.

Attempts along several different lines have been made to meet this need. In many Southern states, health officers are provided for on the basis of county units. In Massachusetts an interesting plan of voluntary community cooperation has been worked out under the guidance of the public health faculty of the Massachusetts Institute of Technology. The most promising plan of all is perhaps the organization of a corps of state sanitary supervisors, acting under the direction of the state board of health and bringing to the support of the local health officer the technical knowledge and the moral support of the entire state.

This system has been in force in Massachusetts, in one form or another, for nearly ten years. It has been incorporated in the new public health law of Maryland, and two years ago was made part of the model health law of New York State.

Those who have followed the development of state health organization in this country noted with satisfaction how the attacks made by the legislature on the New York health law last spring were in the main brought to naught by the remarkable support which that law received from the press and the people of the state. What the politicians dared not do openly they attempted, however, to effect by the familiar method of indirection. It appears that while the plan to cut down the number of state sanitary supervisors in New York from twenty to ten was abandoned, the appropriations made allow only for ten of these important functionaries. If the next legislature does not make special provision for this need, the work of the New York state department will be seriously crippled.

It is gratifying to observe that Governor Whitman, in his address of welcome to the American Public Health Association at Rochester, on September 7, placed himself fairly on record against such petty politics. He said:

> I greatly regret that the legislature at its last session did not make appropriations adequate to fully maintain the work of certain divisions of the state department of health, especially the division of sanitary supervisors, whose work has proved most important and beneficial to the local communities, and by means of whom the knowledge and skill of the expert sanitarians of the department of health are placed at the disposal of the health officers of even the most remote rural districts. I sincerely hope that some means may be found by which the services of these physicians may be retained, and feel confident that next year, when the members of the legislature are made fully acquainted with the facts as to the value of these services, funds will be provided for their continuance. I shall use my influence to attain this end, for while rigid economy in the administration of the finances of the state is essential, savings in expenditure attained through decreased efficiency in health work are not only unwise, but resolve themselves, in the end, into irreparable waste of the most valuable resources of the commonwealth.

TRANSFUSION OF BLOOD

The recent review by Ottenberg and Libman[1] of 212 transfusions performed at Mount Sinai Hospital is a good index of the favor with which this form of therapy is being received. The most impressive part of this report deals with forty-two instances in which transfusion appears to have saved life; twenty-nine of the patients were discharged as well, while thirteen were saved from immediate death, although they continued to suffer from chronic ailments. While these and other results demonstrate that transfusion is no small factor in saving life, only a limited number of surgeons feel capable of doing transfusion with reasonable certainty of success. A brief consideration of the present status of the technic of transfusion, therefore, seems not untimely.

Current literature is so replete with papers on the subject that it is difficult to select a simple method for use. Blood transfusion was employed with reputed good results long before the advent of modern surgery. Recent interest, however, dates chiefly from Carrel's excellent work on the suture of blood vessels, and Crile's transfusion by means of metal cannulas.

Brewer and Leggett[2] first used paraffin-coated glass tubes for the conduction of the blood. Curtis and David[3] introduced the use of a large paraffin-coated glass bulb which permits accurate measurement and satisfactory transfer of blood from donor to recipient.

1. Ottenberg, R., and Libman, E.: Blood Transfusion: Indications, Results, General Management, Am. Jour. Med. Sc., 1915, cl, 36.
2. Brewer, G. E., and Leggett, N. B.: Direct Blood Transfusion by Means of Paraffin-Coated Glass Tubes, Surg., Gynec. and Obst., 1909, ix, 293.
3. Curtis, A. H., and David, V. C.: Transfusion of Blood by a New Method, Allowing Accurate Measurement, The Journal A. M. A., Jan. 7, 1911, p. 35; The Transfusion of Blood, Oct. 28, 1911, p. 1453.

A similar device later invented by Kimpton and Brown[4] has been extensively used with gratifying results.

Lindeman[5] employs sets of ingenious trocar-cannulas to which syringes are attached. The use of salt solution aided by frequent change of syringes prevents clotting. Lindeman's method has met much favor in transfusion at Mount Sinai Hospital. Unger[6] recently evolved a modified syringe method which minimizes traumatism of the vessels and alternately washes out the vessels of the donor and recipient with salt solution.

To prevent clotting — a factor to be reckoned with in any method — Satterlee and Hooker[7] advocate herudin (leech venom), a substance which inhibits coagulation but seems not always devoid of toxic effects. It is not improbable that various preparations differ considerably in the amount of toxin contained. Sodium citrate solution, extensively employed by laboratory workers to prevent coagulation, has been warmly advocated by Weil,[8] and more recently by Lewisohn.[9] The evidence at hand in Lewisohn's report indicates that this solution, when diluted to a point at which it may be introduced freely into the circulation, is still capable of inhibiting coagulation. The most efficacious and generally satisfactory sodium-citrate-blood mixture is as yet unsettled, and perhaps varies according to the blood used; but citrate in a proportion not greater than 0.2 per cent. appears to be satisfactory. In this issue of THE JOURNAL, Simons[10] reports certain experiences which lead him to condemn the use of sodium citrate to prevent coagulation of the transfused blood, so that results of further observation will be required before the availability of the citrate method is determined.

In selecting a donor, two things must be guarded against: First, the transmission of disease, notably syphilis, must be avoided; second, the possibility of hemolysis and agglutination must be excluded. When urgency or lack of laboratory facilities demand, members of the immediate family offer the minimum risk. In all other instances, the Wassermann test and examination for hemolysis of the donor's blood by that of the recipient are necessary. For the latter, the recently described procedure of Rous and Turner[11] is commendable for its simplicity.

To summarize: One who is possessed of average surgical ability can learn to do transfusion; a good technic should be acquired by preliminary work on dogs before human transfusion is attempted. It must, moreover, be recognized that, although many devices now employed yield good results in practiced hands, painstaking care and accurate technic are always necessary. Among the devices which have been successfully used in large series of cases are the glass bulb of Curtis and David, the cylinder of Kimpton and Brown, and the syringe sets of Lindeman. The recent "modified syringe method" of Unger promises much. It would seem probable that eventually through the discovery of harmless anticoagulating methods, transfusion will become a simple procedure. In the meantime, there is no doubt that a more widespread attention on the part of surgeons to the mastery of a good technic of transfusion would be the means of saving many lives.

THE PROBLEM OF SECRETORY NERVES FOR THE THYROID

Evidence which has been presented in favor of the existence of true secretory nerves controlling the thyroid glands has already been reviewed in THE JOURNAL.[1] Among the latest investigators to follow the earlier lead of Asher of Berne, in adducing physiologic evidence supposed to support the view that the glands are under the domination of a nervous mechanism, are Beebe and his collaborators. They base their conclusion on the observation that prolonged stimulation of the thyroid nerves causes a slight reduction in the iodin content of these secretory structures.

It cannot be denied that a histologic basis for the views here referred to exists. Both the vessels and the cells of the thyroids are abundantly supplied with nerve fibers. Vasomotor impulses can readily find a nervous path to the gland. Such structural facts, however, do not conclusively demonstrate the functional necessity of these nervous accessories in the normal activities of the thyroids. There are, today, numerous available illustrations of glandular mechanisms well supplied with nervous structures which nevertheless receive their activating influences through the medium of the circulation. They are stimulated, we now say, by hormones.

Under certain conditions, thyroidal tissue may readily be transplanted to widely separated parts of the body, as, for example, the suprarenal, ovary, subperitoneal tissue, muscle, and subcutaneous fascia of the neck, chest and abdomen. If a sufficient amount of the main gland is removed, under appropriate conditions a compensatory hyperplasia of the remaining stump will ensue; and, in addition, a simultaneous and

4. Kimpton, A. R., and Brown, J. H.: A New and Simple Method of Transfusion, THE JOURNAL A. M. A., July 12, 1913, p. 117.
5. Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, Am. Jour. Dis. Child., July, 1913, p. 28. Blood Transfusion: Report of 135 Transfusions by the Syringe Cannula System, THE JOURNAL A. M. A., March 28, 1914, p. 993. Blood Transfusion by the Syringe Cannula System, Oct. 31, 1914, p. 1542.
6. Unger, L. J.: A New Method of Syringe Transfusion, THE JOURNAL A. M. A., Feb. 13, 1915, p. 582.
7. Satterlee, H. S., and Hooker, R. S.: The Use of Herudin in the Transfusion of Blood, THE JOURNAL A. M. A., June 6, 1914, p. 1781.
8. Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL A. M. A., Jan. 30, 1915, p. 425.
9. Lewisohn, R.: Blood Transfusion by Citrate Method, Surg., Gynec. and Obst., 1915, xxi, 37.
10. Simons, Irving: Experiences with the Sodium Citrate Method of Indirect Transfusion of Blood (Lewisohn), THE JOURNAL A. M. A., this issue, p. 1339.
11. Rous, Peyton, and Turner, J. R.: A Rapid and Simple Method of Testing Donors for Transfusion, THE JOURNAL A. M. A., June 12, 1915, p. 1980.

1. The Nerve Control of the Thyroid Gland, editorial, THE JOURNAL A. M. A., July 25, 1914, p. 325.

similar degree of hyperplasia of any transplants may occur independent of their location.

When very small doses of some iodin-containing substance are given, whether by mouth or by cutaneous applications of tincture of iodin, for example, involution of the thyroidal tissue promptly ensues in from two to three weeks. The change affects the transplants, irrespective of their location, in the same way as the main thyroid stump is affected. These facts are due to the investigations of Manley and Marine[2] of the H. K. Cushing Laboratory of Experimental Medicine at the Western Reserve University in Cleveland. If iodin, which protects against thyroidal hyperplasia, is administered prior to or at the time of transplantation, no hyperplasia of either the original gland or transplants occurs until the effect of the iodin has fallen to the level of inducing an insufficiency. Likewise, if iodin is administered following transplantation, no hyperplasia ordinarily occurs during the time of such administration.

But this is not all. If a large part of the transplanted thyroid tissue and of the original gland, thus involuted, is removed, the remaining transplants and the remaining portion of the stump undergo active hyperplasia for the second time. In evidence of the fact that the transplanted thyroid tissue actually can function, Manley and Marine have observed marked amelioration of the symptoms of operative myxedema associated with active hyperplasia of subcutaneous abdominal transplants in animals.

When thyroid tissue can "take" and grow in widely different parts of the body, when the transplanted tissue can undergo hyperplasia simultaneously with the original stump and in a form histologically identical with it, when a drug like iodin can affect these surgically disconnected fragments in the same way and at the same time, an explanation of these phenomena based on a theory of nervous control does not appear to be tenable. The Cleveland investigators believe that the thyroid may function as a true blood-vascular gland in that the stimuli which cause these hyperplasias may reach the gland cells through the blood stream, and that influences causing thyroid involution may be transmitted by the same means.

It would be illogical, indeed, to draw the conclusion, from what has been said, that specific secretory fibers to the thyroid glands do not exist. The new observations just cited do not directly touch this question. They clearly demonstrate, however, as Manley and Marine point out, that secretory fibers are not essential in order that the thyroid tissue may exhibit the characteristic morphologic and physiologic changes known to be associated with great variations in functional activity.

2. Manley, O. T., and Marine, D.: Studies in Thyroid Transplantation, I, Data Relative to the Problem of Secretory Nerves, Proc. Soc. for Exper. Biol. and Med., 1915, xii, 202.

ENGLISH AND GERMAN MEDICAL EDUCATION

On another page[1] we reproduce in abstract a recent article by Mr. Flexner on "The English Side of Medical Education." It is really a comparison of the English with the German system of medical education. It is evident that neither system should be copied in its entirety in the efforts made to develop medical education. In Germany the teaching of the laboratory sciences has reached perhaps its highest stage of development, and the method of selecting teachers for both laboratory and clinical departments is on the basis of scientific eminence. In these respects the German method would be more worthy of adoption in this country. According to Mr. Flexner, however, the German system of medical education is weak in that the lecture still constitutes the backbone of the instruction furnished and, in fact, is largely the bulk of the instruction. Again, in the medical course the student is still a mere onlooker and does not have free admission to the patients at the bedside. The German course, therefore, is excellent in the development of research workers, but the practical benefit is lost by the failure to allow the student to make use of the knowledge obtained in the laboratory departments in first-hand study and treatment of patients. From other sources meanwhile, it is evident that even during the required intern year his freedom in the hospital is seriously limited.

The weaknesses of the English system, on the contrary, correspond almost entirely to the points which are strong in the German system. In England secondary education has not been so thoroughly developed as in Germany; hence the student is not as well qualified to enter on the study of the so-called laboratory sciences. Meanwhile, these laboratory sciences, with the exception of physiology, are not well developed in the English medical school. Only elementary instruction in anatomy is provided for; pathology is taught only from the gross and descriptive points of view; modern pharmacology is almost unrecognized, and adequate provision for scientific research is almost entirely lacking. For this reason clinical teachers are rarely men of scientific vision or enthusiasm, and are unable to impart the spirit of scientific research to their students.

The method of appointing members of the faculty in England is at fault, since it depends on seniority. There is also considerable inbreeding. Younger men, usually recent graduates of the institution, are appointed to the lesser positions in the hospitals, and promotion depends not on productivity so much as on merely a faithful performance of routine duties. If they stay in the hospital, they are bound in time to reach the higher positions.

The strength of the English system lies in the fact that from the beginning the student has free access

1. The English Side of Medical Education, THE JOURNAL A. M. A., this issue, p. 1391.

to the hospital, where, as a clinical clerk, he has free entry to the bedside of patients. This not only gives him his opportunity to observe facts of diagnosis and treatment, but also it is his duty to assist in the examination and care of patients. As Mr. Flexner says, "he observes his master at work; he is permitted to examine the patient, to confirm or to disprove his master's observations and, subject to his master's control, to go through all the motions involved in the practice of medicine." Cases are assigned to the students or clerks in rotation, each clerk being required to make a complete history and description of each of his cases, including the requisite microscopic examinations. "This method," says Mr. Flexner, "fulfils every requirement of sound teaching; the student is at first hand familiar with the patient; he is compelled to observe and to think; he notes and reports progress from day to day; he sees his master on trial as the procedure followed is either vindicated or discredited by the developments."

It would seem, therefore, that for the highest development of medical education, the medical school should adopt the German method of selecting teachers on the basis of attainments and combine this with the clinical clerk system of hospital teaching as employed by the English schools. Of course, every college needs adequate funds for the employment of full-time teachers, for the adequate equipment of its laboratories, and for the development of medical research. The most useful medical school is not the one which merely passes on the theoretical medical knowledge of former generations, but the one which also, through research, adds to the knowledge of the etiology, diagnosis and treatment of diseases and, through its hospital, and the thoroughly trained physicians graduated each year, gives the public the benefit of this knowledge.

THE DISTRIBUTION OF THE BLOOD IN SHOCK

It almost requires courage to venture on any added discussion of the subject of shock. A multiplicity of more or less isolated facts pertaining to shock have been woven into the fabrics of belief of varied kinds. One of the incentives for increasing the variety and number of hypotheses in regard to shock lies in the eminently practical aspects of the problems that they encompass. A really tenable explanation of shock would find prompt service in the routine of the practitioner. The secretary of commerce recently remarked, in an address entitled "First Get the Facts,"[1] that "the truth of yesterday is not that of today. The truth of today is but the parent of that which is to be tomorrow. . . . Where prejudice is, truth is so far excluded, for no judgment given in advance of known truth is either sound or safe." Therefore it is essential in any progressive vocation that "the sight, whether it be far or near, shall know a fact when it sees it and be ready to abandon a pseudo fact for a real one and to abide by the latter till further facts are found."

The foregoing must serve as the excuse, if such is needed, for reverting to new facts in regard to the distribution of the blood in shock. It is evidently the disturbance in the normal distribution of the circulating fluid of the body that constitutes an essential factor in shock. Janeway and Jackson[2] of the University and Bellevue Hospital Medical College, New York, have adopted for their experimental studies that form of shock which is produced by mechanical means, because, under these conditions, fewer extraneous factors enter into the consequences of the primary disturbance of the normal distribution of the blood. It consists in a controllable partial occlusion of the vena cava inferior in the chest, whereby the amount of blood passing from the veins to the arterial side of the circulation can be accurately controlled, and, in consequence, the blood pressure regulated. The observations made in this way on the altered volume of various visceral organs as the result of induced changes in the blood supply lend emphasis to the importance of what Yandell Henderson has described as the venopressor mechanism, and they confirm its failure in shock.[3]

Through the inability of the blood in the inferior vena cava to discharge adequately into the heart, there results a mechanical distention and increased intravascular pressure in the capillaries and small venules of the regions draining into this vessel. After release of the experimental obstruction, the arterial pressure, which has previously been low, may return for a time to a comparatively high level. According to Janeway and Jackson, the crucial factor concerns a progressive fall in the arterial pressure: after the relief of the obstruction to the flow through the inferior vena cava, there occurs, even after a more or less complete restoration of the arterial blood pressure, a progressive fall until death. This, they assert, can be the consequence only of some change in the walls of the vessels primarily affected by the occlusion of the inferior vena cava, namely, the capillaries and small venules. On this basis, then, in mechanically induced shock, a mechanical distention of a certain degree and persistence is liable to cause an alteration in some normal property of the capillaries — of their tone — as the result of which they lose the power of emptying the increased quantity of contained blood through the heart into the arterial side of the circulation. This power is retained, however, after shorter periods of overdistention or distention of lesser degree.

1. Redfield, W. C.: First Get the Facts, Science, July 9, 1915, p. 39.

2. Janeway, H. H., and Jackson, H. C.: The Distribution of the Blood in Shock, Proc. Soc. Exper. Biol. and Med., 1915, xii, 193.

3. Some Conditions Inducing Excessive Respiration, editorial, THE JOURNAL A. M. A., June 13, 1914, p. 1897; The Vasomotor Center in Shock, Current Comment, May 8, 1915, p. 1588.

Overdistention of the capillaries may result in various ways: By obstruction to the venous return to the heart there may be a draining back of blood within the capillaries, or in other forms of shock there may be sudden discharge of blood at high pressure into the capillaries. It seems to be a fact that in any case the normal quota on the arterial side of the circulation is diminished. Even after the original cause of the disturbed distribution of the blood, whether mechanical, toxic or inhibitory in nature, is removed, the circulatory condition may persist; and in fatal cases the abnormal diminution of the blood apparently progresses from local peripheral causes alone until death occurs. Janeway and Jackson express the abnormality by saying that shock consists in a general displacement of what may be termed a critical quantity of blood from the arterial to the capillary and venous side of the circulation, a displacement which is therefore accompanied by comparatively insignificant volumetric changes, and dependent largely on a loss of existing tone in the walls of the small venules and capillaries.

THE SOY BEAN, ITS ENZYMES AND CARBOHYDRATES

The soy bean (*Glycine hispida*) is an annual leguminous plant, a native of southeastern Asia. In Japan and China, where it has been grown from time immemorial, it is used for human food and is an important crop in many provinces.[1] Over two hundred varieties of the bean are reported, and many and varied kinds of food are made from it. Though known in Europe since the latter part of the eighteenth century, and in the United States since 1829, it long remained a botanic curiosity in both places. It was introduced into the United States on the return of the Perry expedition from Japan in 1853. For more than twenty-five years it has been under investigation by the U. S. Department of Agriculture and by some of the state agricultural departments, and is just now beginning to take a place as a farm crop. The North Carolina Experiment Station recommends soy beans as a palatable vegetable, but their use has not become general; they are used in this country chiefly as forage plants, for ensilage and to enrich the soil.

Recently the soy bean has achieved some degree of medical prominence because of two characteristics: It contains several enzymes, one of which, urease, decomposes urea into ammonia and carbon dioxid. This enzyme is therefore used to determine the amount of urea in the urine, the blood and other body fluids.[2] Also, being very rich in protein and fat and containing only traces of starch, soy bean products have been recommended as foods for diabetics.[3] In combination with condensed milk and barley flour, their use has been advised in the form of a gruel for infant feeding in cases in which fresh milk cannot be obtained or the milk supply is questionable. They have been recommended in certain cases of inability to digest cow's milk and of temporary intestinal derangement.[4]

Although the soy bean is almost completely free from starch, it contains about 20 or 25 per cent. of nitrogen-free extract (total carbohydrates) which, until recently, had not been thoroughly studied. Since starch is not the only carbohydrate injurious to diabetics, it is desirable that the identity, amounts and percentages of the various carbohydrates in the bean should be worked out. Street and Bailey[5] of the analytical laboratory of the Connecticut Experiment Station, present analyses of several varieties of soy beans which have been grown on the experiment station farm. The average percentages are: water 10, ash 5.54, protein 38.29, fiber 4.64, nitrogen-free extract (total carbohydrates) 26.64 and fat 14.89. The average percentages from similar analyses of several commercial soy bean flours are: water 5.1, ash 4.5, protein 42.5, fiber 3.7, nitrogen-free extract 24.3 and fat 19.9. The greater proportion of protein and fat in the commercial flour is attributed by Street and Bailey to loss of the other ingredients through bolting and other purifying manufacturing processes. The constituents of the nitrogen-free extract were especially studied for a single variety of the beans grown on the experiment station farm. The results in percentage are: total sugars 4.51, starch 0.50, dextrin 3.14, pentosan 4.94, galactan 4.86 (less 0.24 due to raffinose), cellulose 3.29, organic acids 1.44 and waxes, color principles, etc., 8.60. Street and Bailey remark that, of these constituents, only the first three—the sugars, starch and dextrin—amounting to 8.15 per cent., may be considered objectionable in a strict diabetic diet. "The remaining nitrogen-free extract, 22.93 per cent., about three fourths of the whole, consists of . . . forms which are not generally considered a source of danger in a diabetic diet."

These investigators also studied the enzymes of the soy bean, finding a protease of the peptoclastic type, a peroxidase and a lipase in addition to the urease, amylase and glucosid-splitting enzyme previously reported. Sucrase and protease of the peptonizing type were not found. Owing to the wide distribution of enzymes in vegetable tissues and the ease with which they can usually be detected, less importance is attached by the authors to this section of their report.

1. Piper, C. V., and Nielsen, H. T.: Soy Beans, Farmer's Bull, 372, U. S. Dept. Agric., 1909. Ball, Carleton R.: Soy Bean Varieties, Bur. Plant Ind. 98, U. S. Dept. Agric., 1907.

2. Two urease preparations (arlco-urease and urease-Dunning) have been admitted into New and Nonofficial Remedies (N. N. R., 1915, p. 362).

3. See for instance Friedenwald and Ruhrah (The Use of the Soy Bean as a Food in Diabetes, Am. Jour. Med. Sc., December, 1910, p. 793). Diabetic foods (hepco flour, hepco dodgers, and hepco grits) made from the soy bean have been admitted into New and Nonofficial Remedies (N. N. R., 1915, p. 193).

4. Ruhrah, John: The Soy Bean and Condensed Milk in Infant Feeding, Am. Jour. Med. Sc., October, 1915, p. 502.

5. Street, J. P., and Bailey, E. M.: The Carbohydrates and the Enzymes of the Soy Bean, Jour. Indust. and Engin. Chem., October 1915, p. 853.

The chief interest of their work naturally centers in the carbohydrate analyses.

An interesting point is the suggestion that differences in starch content of the beans found by various investigators are probably due to differences in ripeness, or rather to differences in the circumstances under which they are allowed to ripen. "Harz found that, when the beans do not ripen thoroughly, or when they are allowed to ripen after the vines are cut, starch may be present, certain varieties being more likely to contain it than others, whereas if the beans are thoroughly ripened they are practically free from starch." In this connection it should be noted that Street and Bailey do not state whether or not the beans which they analyzed were hulled. Ruhräh[4] lays stress on the importance of the removal of the skins or "coarse fibrous hulls which contain little protein in the preparation of soy beans for diabetic or infant food." In any case, it is satisfactory to know that the total amount of sugar-forming carbohydrates contained in soy beans falls well within the limit of 10 per cent. regarded as safe for diabetics.

Current Comment

"AT THE BAR OF PUBLIC OPINION"

When the medical profession gives the public facts regarding the fraudulence and dangers connected with the exploitation of "patent medicines," the "patent medicine" manufacturer has a stock retort ever ready: "The doctors are opposed to 'patent medicine' because it hurts their business; because 'patent medicines' cut into the income of the medical profession." Few excuses ever rested on a less substantial basis. Considered from the financial standpoint only, the fraudulent "patent medicine" business is the physician's greatest boon. Far from curtailing his income, the advertising and selling of fraudulent "patent medicines" greatly augment it. Every lurid "patent medicine" advertisement that frightens the healthy into the belief that they are ill sends four of such people to the doctor to one that it sends to the "patent medicine" counter. No small proportion of the physicians' patients are those who, neglectful of disease in its early stages, and believing the claims made for fraudulent "patent medicines," have placed their dependence on these products until they have reached a condition where prolonged medical attention is imperative. For years most newspapers and many magazines have been under the blighting influence of the profits of quackery. But a change is taking place and many newspapers and magazines of the better class are now outspoken in their denunciation of the cruelty and fraud that seem to be inseparable from the exploitation of "patent medicines." The Propaganda department of THE JOURNAL has collected some editorial opinions on the "patent medicine" business and quackery from newspapers and magazines and reprinted them in pamphlet form.[1] These editorial excerpts are from publications that not only have no possible connection with the medical profession but could, if they would, be beneficiaries of the "patent medicine" industry: they are criticisms of a business that, as the price of silence, would willingly give fat advertising contracts to the publications that have voiced them.

AMINO-ACIDS AND TUMOR TISSUE

The importance of certain amino-acids for the functions of growth has been emphasized by the recent work of Osborne and Mendel[2] and other investigators. When the proteins furnished in the diet are deficient in the amino-acids lysin and tryptophan, for example, growth is halted. These derivatives evidently cannot be synthesized by the animal organism; so that when they are lacking the protein structure of newly formed tissues cannot be built up. When the missing amino-acids are supplied either as such or in the form of proteins yielding them, youthful tissues can resume their growth. In contrast with normal tissues, malignant tumors are characterized by an exceptional tendency to grow. This fact, in connection with the features cited above, has raised the question whether or not these pathologic tissues show any unique composition with respect to the amino-acid "building stones" which enter into them. The chemical analyses of tumor tissue recorded up to date have been all but encouraging so far as any light thrown on the tumor problem is concerned. They have been fragmentary and inadequate in respect to both methods and results. There are, however, a few amino-acids which can be estimated at the present time with some approach to accuracy. The list includes arginin, histidin and lysin. This has encouraged Kocher to attempt a new comparison of the content of normal somatic and tumor tissue of man in respect to the amino-acids just mentioned.[3] Their quantity was found in five cases of malignant neoplasm to be approximately double that found in normal tissue. Whether such high percentages of these important amino-acids is a peculiarity of tumors or whether a corresponding increase will be found in normal rapidly growing tissue is a problem now under investigation. Kocher believes, however, that his results suggest a new approach to the study of the cancer problem, especially as it relates to metabolism. He recalls the evidence offered by Sweet, Rous and others[4] that when white rats having carcinoma are fed on a diet deficient in these basic amino-acids the tendency to metastasize is frequently diminished. Sometimes the tumors grow rapidly in these experimental cases, but there is a correspondingly rapid emaciation of the body. This fact, says Kocher, may indicate that the somatic tissue in such instances is broken down to furnish the required amino-acid to the rapidly growing tumor cells.

1. This pamphlet, entitled "At the Bar of Public Opinion," will be sent on receipt of a two-cent stamp.
2. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1912, xii, 473; 1912-13, xiii, 233; 1914, xvii, 325; 1915, xxii, 241.
3. Kocher, R. A.: The Hexone Bases of Malignant Tumors, Jour. Biol. Chem., 1915, xxii, 295.
4. Sweet, J. E.; Corson-White, Ellen P., and Saxon, G. J.: Jour. Biol. Chem., 1913, xv, 181. Rous, P.: Bull. Johns Hopkins Hosp., 1915, xxvi, 146.

THE SELECTIVE ACTIVITY OF THE KIDNEY

A comparison of the composition of the urine from each of the two kidneys after damage to one of them might be expected to reveal evidence regarding the possible selective power of the renal cells in relation to waste products. The modern blood analysis has already furnished facts to indicate that under pathologic conditions the kidneys may not be equally "permeable" or "impermeable" to all of the usual urinary components. Accordingly the "retention" of one or another of the familiar excretory products is announced and the expressions "salt retention," "nitrogen retention," etc. have come into use. They are indicative, without being conclusive, of a possible specific functional deterioration of the kidneys. Folin and Denis[1] have obtained complete and simultaneous collections of urine from each kidney, for reasonably long periods, after damage to one of these organs. The patients had been operated on for malignant growths in the bladder, so that a double ureterostomy rendered possible the collection of "single kidney" urines. In each case one or both kidneys had been infected and in addition somewhat damaged by the pressure of the bladder tumor on the ureteral opening. The hydronephrosis resulting from such back pressure is currently believed to injure the convoluted tubules rather than the glomeruli. The comparative analyses of a limited number of cases show that the damage produced by moderate hydronephrosis complicated by pyelitis is not particularly uniform in character so far as the excretory power of the kidneys is concerned. Comparisons of chlorid and nitrogenous excretion show that the capacity to eliminate nitrogenous substances is more easily or more frequently damaged than is the salt excretion. Indications of more detailed selective injury are seen in the lack of correspondence between the variations in phosphate and chlorid excretion. The output of creatinin and uric acid likewise did not vary together. A new conception is indicated by these unique clinical experiments. Without generalizing too minutely on the basis of the still limited data, Folin and Denis believe that their figures agree with the view that the excretion of urine by the kidney can be subdivided into an unknown number of more or less independent excretions. This is in harmony with other established physiologic facts regarding renal excretion.

MUSCULAR TISSUE IN THE AURICULO-VENTRICULAR VALVES

Stanley Kent[2] has recently described muscular tissue, in the valve segments of the hearts of mammals, where its existence has hitherto apparently not been generally recognized. The muscle is striated, of a character similar to that forming the walls of the heart's chambers, and is continuous with the contractile tissue of the auricular wall. The muscular tissue may penetrate the valve flap to a considerable distance, and there is reason to suppose that this valvular muscle contracts in sympathy with the auricle and as a direct result of impulses derived from it. It is likely, as Kent suggests, that muscle in the situation described and with the connections referred to may exercise an important function in connection with the closure of the auriculoventricular valves of the heart.

1. Folin, O., and Denis, W.: Some Observations on the Selective Activity of the Human Kidney, Jour. Biol. Chem., 1915, xxii, 321.

2. Kent, A. F. S.: Illustrations of Muscular Tissue in the Auriculo-Ventricular Valves of the Mammal's Heart, Proc. Physiol. Soc., Jour. Physiol., 1915, xlix, p. xxxix.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Sanatorium Act Repealed.—The act of 1911 establishing a state sanatorium for tuberculosis has been repealed by the senate. The original act appropriated $40,000 for this purpose, and of this, $16,000 was spent for the purchase of a site in Cullman County, but the property has never been improved and no step has been taken for the erection of a building.

Plague Bill Passed.—The bill introduced by Senator Hartwell carrying a conditional appropriation of $10,000 to prevent the introduction of bubonic plague into Alabama through the port of Mobile or through any other avenue, has been passed by the senate by a vote of 13 to 8. It was explained that the funds are to be made available, if necessary, and in that case are to be handled by the State Board of Health with the approval of the governor.

Personal.—Drs. J. Alston Maxwell and Herbert Patton have been appointed surgeons for the student body of the University of Alabama, Tuscaloosa.——Dr. Tucker H. Frazer has been appointed dean of the Mobile School of Medicine of the University of Alabama, succeeding Dr. Eugene D. Bondurant, resigned, on account of ill health.——Dr. William M. Hestle, Buena Vista, was operated on recently in Baltimore for the removal of a growth from the lip, and has returned home.——Dr. Benjamin J. Baldwin, Montgomery, lost $5,000 as the result of a fire which destroyed his buildings, September 30.

CALIFORNIA

Health Department Moves.—The health department of Los Angeles has moved its headquarters from the City Hall to the Normal Hill Center.

Refuse to Rescind Isolation Regulation.—The board of supervisors of San Francisco, by a vote of 15 to 1, turned down the petition of the Parents' Rights League to take action to nullify the power of the local health board to isolate diphtheria carriers.

Prevention of Blindness.—The Jones bill for the prevention of blindness was passed by the legislature and became a law in June, 1915. The act gives the definition of ophthalmia neonatorum, requires that cases of this disease shall be reported within twenty-four hours, and provides that certain measures of prevention shall be taken by the local health officer and the State Board of Health. The new vital statistics law provides in the birth certificate a query whether the prophylactic for ophthalmia neonatorum was used.

GEORGIA

Prison Hospital Opened.—The hospital annex to the Federal Penitentiary, Atlanta, was opened September 29. The institution will accommodate 150 patients, and will be in charge of the surgeon-in-chief, assisted by professional men who are serving sentences in the Federal Penitentiary.

Urologists and Dermatologists Organize.—The Atlanta Urological and Dermatological Society was organized September 9, with an initial membership of twelve. Dr. Bernard Wolff was elected president; Dr. William L. Champion, vice president, and Dr. Omer F. Elder, secretary-treasurer.

Home for Crippled Children Opened.—The Home for Crippled Children established by the Scottish Rite Masons of

Atlanta was formally opened, September 23, with fourteen inmates. The institution has two cottages in charge of a physician and nurse. The home is capable of accommodating twenty patients.

Medical Society Organized.—At a meeting of the physicians of Marion County held at Buena Vista recently, the Marion County Medical Association was organized with the following officers: president, Dr. Wesley Jefferson, Buena Vista; vice president, Dr. S. A. Murray, Tazewell; and secretary-treasurer, Dr. A. H. Drane, Buena Vista.

Personal.—Dr. and Mrs. Dean F. Winn, Atlanta, have returned from Russia. Dr. Winn was given the rank of lieutenant colonel in the Russian service on account of work done in the American Red Cross Hospital at Kiev.——Dr. Mather M. McCord, Rome, has been elected health commissioner of Floyd County and will assume office in January.——Drs. William P. Harbin and James C. Watts have been elected members of the board of trustees for the General Hospital to be established by Rome and Floyd County.

State Medical College Scholarships.—Scholarships in the medical department of the University of Georgia, Augusta, have been awarded by Governor Harris to the following applicants subject to the required examination: First district, S. H. Titshaw, Lyons; second district, R. W. Wimberly, Fort Gaines, and W. J. Ford, Sylvester; fourth district, Dr. W. E. Thomason, Texas; R. T. Park, Newnan, and Lee Reeves, Carrollton; eighth district, Jones Weems, Eaton, and Lamar Craft, Elberton; ninth district, Hoke S. Cantrell, Cornelia, and H. C. Chilson, Alpharetta; eleventh district, Lamar Harris, Wrightsville.

ILLINOIS

State Hospital Staffs to Meet at Elgin.—The State Hospitals' Medical Association of the State Hospitals of Illinois announces that its next meeting will be held at the Elgin State Hospital, October 28 and 29.

Personal.—Dr. George A. Zeller, Springfield, has been appointed alienist of the State Board of Administration.——Dr. and Mrs. Frederick E. Tulley, Granite City, have returned after a summer spent on the Pacific Coast.—Dr. William H. Maley, Galesburg, was painfully injured by the overturning of his automobile south of Maquon, October 3.

Joliet Hospital Must Enlarge.—The Will County Medical Society gave a dinner, September 23, in honor of the board of directors of the Silver Cross Hospital, Joliet, at which Dr. Frederick W. Werner presided. A maternity wing is urgently needed for the hospital, and plans have been made and approved for this addition. It was shown that the hospital had on hand about $30,000 to apply on the building fund. This leaves $45,000 to be secured in addition, and a committee was appointed to take up this matter.

Charity Conference.—The twentieth State Conference of Charities and Correction will be held in Danville, October 23 to 26, under the presidency of Dr. George T. Palmer, Springfield. The first day of the conference will be devoted to public health, nursing, visiting nurses, antituberculosis, etc., under the auspices of the Illinois Association for the Prevention of Tuberculosis.——The Illinois Association of County Home Superintendents and Illinois Probation Officers Association will hold their annual sessions in Danville, October 22 and 23.

Chicago

To Raise Money for Hospital in China.—Dr. Hie Ding Lin, an intern at Mary Thompson Hospital, made an appeal before the Women's Association of Commerce, September 30, to raise money for a free hospital for women and children at Foo Chow, China.

Tuberculosis Society Meeting.—The sixteenth meeting of the Robert Koch Society for the Study of Tuberculosis will be held at noon, October 18, at the City Club. On this occasion Dr. Francis M. Pottenger, Monrovia, Calif., will speak on "The Diagnosis of Tuberculosis by Palpation."

Physician's Wife Dies.—The sympathy of the members of the medical profession of Chicago goes out to Dr. Robert B. Preble in the sad affliction that has fallen on him. On October 6, through a fire that started in his house, Mrs. Preble and her mother were burned so that the latter died immediately and the former within a few hours.

Personal.—Dr. G. French S. Cary was severely injured last month while on a motor trip with his wife and baby near McCool, Ind., when the car went over a bank into a pool of water 18 feet deep.——Dr. and Mrs. Charles Adams have returned to Chicago after an absence of two years in Hawaii, the West Indies and Central America.——Dr. Reinhard Rembe is reported to have been decorated with the Iron Cross by the German emperor. Dr. Rembe has been in service with the German army since the outbreak of the war.——Dr. and Mrs. Arnold C. Klebbs, Switzerland, will spend the winter in Washington, D. C.——Dr. William S. White was operated on at the Evanston Hospital, October 8, for appendicitis and the removal of gallstones, and is reported to be improving.

MARYLAND

Typhoid in Baltimore.—During September, 189 new cases of typhoid fever were reported, with twenty-two deaths. During September, 1914, 130 cases occurred.

The Fight Against Malaria.—Senior Surg. Henry R. Carter, U. S. P. H. S., in charge of the Marine Hospital at Baltimore, has been detailed by Surgeon-General Blue to cooperate with the State Board of Health in stamping out malaria in Virginia.

Suits Decided in Favor of Physician.—Suits aggregating $15,000, brought against Dr. Alexander E. Muse, in which damages were claimed for injuries alleged to have been sustained by a 3-year-old boy who was struck by an automobile belonging to Dr. Muse, were decided in favor of the physician, October 1, as the fact was established that the automobile was being driven by a colored man without permission from Dr. Muse.

Physicians Form Civic Club.—At a meeting of physicians recently held at the Medical Library, a movement was started for the organizing of the Physicians' Civic Club, the object being to familiarize physicians with the city government and other subjects of interest to them. Dr. William T. Watson was elected temporary chairman and Dr. Frederic V. Bietler temporary secretary. The chairman was authorized to appoint a committee to draft a constitution and by-laws and another to nominate officers.

Personal.—Dr. William F. Lockwood, formerly dean of the College of Physicians and Surgeons, has been chosen dean of the School of Medicine of the University of Maryland to fill the vacancy caused by the death of Dr. R. Dorsey Coale. Dr. Lockwood is professor of medicine in the university and is a graduate of that school. Dr. Arthur M. Shipley, Baltimore, who has been acting dean since Dr. Coale's death, refused the deanship.——Dr. B. Merrill Hopkinson, professor of oral hygiene in the University of Maryland, delivered the introductory address to the students of the several classes, October 4.——Dr. John D. Blake, commissioner of health, has announced the appointment of Dr. William Travis Howard, Jr., as assistant commissioner, in place of Dr. C. Hampson Jones, Baltimore, and Dr. Austin H. Wood as secretary to the department.——Dr. Nathan R. Gorter, former health commissioner of Baltimore, has qualified as a member of the State Board of Health, to which he was appointed by the governor soon after his successor as health commissioner was named by the mayor.——Dr. Mary R. Fleming, a medical missionary of the Presbyterian Church, has arrived at Tabriz, Persia. She is a graduate of the Johns Hopkins Medical School, and at Tabriz will be physician and surgeon in charge of the hospital for women.

MASSACHUSETTS

Must Not Wrap Food in Newspapers.—Dr. Francis X. Mahoney, health commissioner of Boston, has issued an order to storekeepers prohibiting the use of unclean wrappers for food.

Ether Day.—The sixty-ninth anniversary of Ether Day was celebrated at the Massachusetts General Hospital, October 16. The exercises were held in the lower amphitheater in the outpatient department, and Dr. William Williams Keen, Philadelphia, delivered the address.

Course in Medicine and Pathology.—A course in medicine and pathology is to be given during October and November in the Pathological Amphitheater of the Massachusetts General Hospital by Dr. William H. Smith, visiting physician, and Dr. Oscar Richardson, assistant pathologist of the institution. The course will be given on Wednesday from 3:15 to 5:15 p. m.; is open to graduates of medicine and to third and fourth year students.

Personal.—Dr. Michael F. Fallon, Worcester, has been appointed a member of the Board of Registration in Medicine.——Dr. Alura A. C. Hughes, Boston, has been appointed medical inspector in charge of the nurses in the child hygiene

division of the health department.——Dr. Benjamin H. Metcalf, Winthrop, has recently completed a tour by automobile to the Pacific Coast and return, a continuous journey of about 10,000 miles.——Dr. Edward C. Briggs, Boston, has resigned as professor of materia medica and therapeutics in Harvard Medical School and has been made professor emeritus.

MICHIGAN

Higher Entrance Requirements.—An official report states that beginning in the fall of 1916 the entrance requirements of the University of Michigan, Homeopathic Medical School, will be raised to two years of collegiate work. This makes forty-six medical colleges which in 1916 will have put into effect for admission the requirement of two or more years of collegiate work.

Personal.—Dr. Marinus L. Holm, Lansing, formerly state bacteriologist, but recently placed in charge of the branch laboratory of the State Board of Health at Houghton, has resigned and will practice in Lansing.——Dr. Albert F. Stone, Bay City, injured his left hand in the gear of his automobile September 30, necessitating the amputation of the first and third fingers.——Dr. Christopher G. Parnall, Jackson, has been appointed district medical inspector for Jackson and Lanawee County.——Dr. Arthur E. Ames, Morrice, was seriously injured by the overturning of his car in a collision with another automobile recently.——Dr. Morton Gallagher, Bay City, is reported to be seriously ill following an attack of sciatica.

MINNESOTA

New Medical Building.—The new twelve-story building to be erected on Seventh Street, Minneapolis, for the use of physicians at a cost of more than $300,000, is to be commenced this month.

Emergency Ambulance Service.—An emergency ambulance association is being formed among the physicians of Duluth. The object of the organization is to place in service an automobile ambulance. Dr. William A. Coventry, Duluth, is in charge of the project.

Hospital Notes.—Dr. Giles R. Pease, Redwood Falls, expects to open his new hospital in that city this month.——Dr. Fletcher W. Powers has added a two-story porch and sun parlor to his hospital building in Barrett and has renovated the entire building.

New State Officials.—At the annual meeting of the Minnesota State Medical Association in Rochester, September 29 to October 1, the following officers were elected: president, Dr. J. Warren Little, Minneapolis; vice presidents, Drs. John J. Donovan, Litchfield; Arthur C. Rogers, Faribault, and Charles O. Wright, Luverne; secretary, Dr. Thomas S. McDavitt, St. Paul (reelected); treasurer, Dr. Earle R. Hare, Minneapolis; and councilors, Drs. Richard J. Hill, Minneapolis, fourth district, and Franklin A. Dodge, LeSueur, seventh district.

Personal.—Dr. William A. Bessesen, Albert Lea, suffered a loss of $4,000 in the destruction of his building by fire, September 28.——Drs. Herman W. Froehlich, Harvey G. Hieber, Francis Gambell, Jesse E. Douglass and Oscar F. Mellby, Thief River Falls, were the guests of honor at a dinner given by the local commercial club, September 24, as an appreciation of the work done by the physicians in establishing the new hospital at Thief River Falls.——Dr. Andrien J. Kirghis, St. Cloud, has started for France and expects to enter the French medical service.

MISSOURI

St. Louis

Personal.—Dr. Frederick Hagler has returned from abroad where he has spent several months in the service of the Red Cross.

Reduction of Feebleminded in Schools.—Dr. J. E. Wallace Wallin, director of the psycho-educational clinic of the St. Louis public schools, in his first annual report, shows a decrease of nearly 25 per cent. in the number of children listed as feebleminded, as compared with last year. When Dr. Wallin took charge of the clinic, 468 pupils were receiving instruction in special schools for the feebleminded. By classifying these children he has reduced the number of pupils in special schools to 372. Of the total number of children examined by him, 7 per cent. proved normal; 12 per cent. showed evidence of retarded intellect; 33 per cent. were listed as backward; 11 per cent. were on the borderline between backwardness and the first state of feeblemindedness; 15 per cent. were morons; 14 per cent. imbeciles, and 1 per cent. idiots. Of the entire number, 20 per cent. had speech defects.

MONTANA

School Inspection.—The members of the Gallatin County Medical Society have again secured the inspection of the Baker Creek school district. This is the only rural school in the state under inspection.

Personal.—Dr. Edward M. Gans has been elected mayor and president of the Commercial Club of Judith Gap.——Drs. James F. Blair and Joseph H. Delaney, Bozeman, toured Yellowstone Park by automobile during September.——Dr. James F. Blair, Bozeman, has gone east for postgraduate work and the surgical congress.——Dr. Herbert H. Judd, Bozeman, spent his vacation in an automobile tour of Glazier Park.——Dr. William C. Riddell, Helena, was in charge of the safety and health committee of the Montana State Fair, which was visited by 40,000 persons during the week.

NEW YORK

Personal.—Dr. Otto R. Eichel has been appointed by Dr. Biggs to the position of director of the division of sanitary supervisors of the State Department of Health.

Harvey Society Lectures.—The first lecture of the eleventh course of the Harvey Society will be delivered at the New York Academy of Medicine on October 16 at 8:30. At this time Prof. C. W. Stiles of the Hygienic Laboratory, Washington, D. C., will lecture on "Recent Studies on Schoolchildren with Special References to Hookworm Disease and Sanitation."

New York City

New Buildings for Randall's Island.—The aldermen have voted $650,000 in corporate stock for new buildings for the children's hospital and schools on Randall's Island and for the nurses' home on Blackwell's Island.

Pensions for Widowed Mothers.—The Board of Child Welfare which is to administer the Widowed Mothers' Pension Law has for the first time presented its budget for this city, and the board will ask $483,000 for the relief of widowed mothers and $36,000 for office expenses. Applications are in from 3,166 mothers who are estimated to have 9,204 children. These figures do not include 1,500 children who are now in institutions who might be returned to their mothers. Each case is to be investigated and passed on before 1916.

Health Department Will Aid in Diagnosis of Glanders.—The health department announces that it is prepared to test, free of cost, by the blood reaction for glanders, all horses in the greater city of New York. Horse owners are urged to take advantage of this facility by employing a competent veterinarian to collect a specimen of blood from each horse in their stable and to forward it to the department together with the number which is issued to the horse by the department of agriculture of the state. The department intends to have all horses in the city tested. If an owner indicates that he cannot have a specimen for examination collected by a private veterinarian the department will consider a request to have it done by a veterinarian in the employ of the city.

Physical Examination of Schoolchildren by Private Physicians.—The attention of all the physicians in the city has been called to that section of the sanitary code and to the regulations governing the physical examination of schoolchildren of the city of New York. It is the desire of the department of health to have all schoolchildren physically examined by their private physicians and to have the medical inspectors assigned to duty in the schools examine only those children whose parents are unable to afford the services of a private physician. The department announces that it counts on the cooperation of the medical profession and that prompt examination with the immediate return of the card, properly filled out, will greatly facilitate the work of the Bureau of Child Hygiene. A copy of the card form together with the regulations of the board of health with respect to this examination is being sent to all physicians in the city.

The Interstate Commission to Fight Mosquitoes in 1916.—In order to avoid a repetition of this year's mosquito experience, Commissioner Goldwater proposes the formation of an interstate commission to fight mosquitoes in 1916. New York City was not alone in its suffering from mosquitoes

during the past summer; the situation was no better in the neighboring states. The residents of the nearby states have a common interest in this matter with those of New York City. Furthermore, no permanent relief from the nuisance can be expected by New York, unless vigorous preventive measures are simultaneously prosecuted in Connecticut, New Jersey and Westchester County. For these reasons the formation of an interstate commission is proposed. It will be organized if Dr. Goldwater's plans are carried out at the end of this year. The U. S. Public Health Service has been invited to join and has been requested to nominate a chairman to direct the work of the commission.

OHIO

Portrait of Dr. Conner Presented.—An oil painting of the late Dr. Phineas S. Conner was presented to the Cincinnati General Hospital by Dr. Charles E. Caldwell, September 14.

Hospital Dedicated.—The Good Samaritan Hospital, recently completed at Clifton and Dyxsmith Avenue, Cincinnati, was dedicated with appropriate ceremonies, October 2. The buildings and equipment have cost thus far about $175,000, only one wing of the institution being completed. The plans call for a five-wing edifice, which will cost more than $300,000. The addresses on the occasion were delivered by Dr. Charles L. Bonifield, Cincinnati; Dr. Henry T. Sutton, Zanesville, a member of the State Board of Health, and Dr. Lewis S. McMurtry, Louisville, Ky.

Personal.—Dr. Philip D. Wilson, Columbus, has returned after a term of military hospital service in France.——Dr. John R. Johnson, for more than two and a half years superintendent of the district tuberculosis hospital at Lima, resigned, the resignation taking effect October 15. After a postgraduate course in New York City, he expects to return to Lima and enter practice.——Dr. Roger S. Morris has been appointed full-time professor on the staff of the Cincinnati General Hospital.——Dr. Rufus A. Van Voast, Cincinnati, has returned home after several months' hospital service with the French army.

Work on New Medical School Begins.—Dr. Christian R. Holmes, Cincinnati, announced September 27, that the work of grading the ground for the new medical school directly opposite the contagious group of buildings of the Cincinnati General Hospital had begun. The school will be ready for occupancy in about a year and a half. The cost of the buildings will be about half a million dollars and the institution will have accommodations for about 200 students.

Saturday Evening Free Lectures.—The following is the program of the Saturday evening free lectures before the B. Merrill Ricketts Experimental Surgical Research Laboratory for the season 1915-1916:

October 16—Dr. Mortimer Frank, Chicago. The History of Glands. (Illustrated.)

October 23—Dr. Frank Winders, Columbus. The Heart Comparative Anatomy. Function, Uses and Abuses. (Illustrated.)

October 30—Dr. Sydney E. McKee, Cincinnati. Two Years' Travel Around the World. Medical and Scenic. (Illustrated.)

November 6—Dr. Axel F. Wercliis, Chicago. Surgery of the Heart, Lungs and Trachea. (Illustrated.)

November 13—Dr. Chas. T. Souther, Cincinnati. The Stomach Comparative Anatomy, Function and Surgical Aspects. (Illustrated.)

November 20—Dr. DeEnna D. DeNeen, Cincinnati. The Ureter Anatomy, Function and Restoration. (Illustrated.)

November 27—Dr. David I. Wolfstein, Cincinnati. The Cerebellum and Its Function. (Illustrated.)

December 4—Dr. Wm. E. Schenck, Cincinnati. Optical Instruments Construction and Uses. (Illustrated.)

December 11—Dr. William J. Thomasson, Newport, Ky. The Upper Air Passages and Tonsils. Comparative Anatomy and Diseases. (Illustrated.)

December 18—Dr. Sparrell S. Gale, Roanoke, Va., Chief Surg. N. & W. R. R. Safety First, How It Saves Life and Property. (Demonstrations.)

January 8—Prof. Chas. T. P. Fennel, Cincinnati. Poisons and Narcotics (Mineral, Vegetable, Animal and Insect). (Illustrated.)

January 15—Dr. Willard D. Haines, Cincinnati. Cancer of the Stomach, Precancerous Condition and Surgical Aspects. (Illustrated.)

January 22—Dr. Joseph E. Pirrung, Cincinnati. Hare Lip and Cleft Palate. Their Embryology, Causes and Correction. (Illustrated.)

January 29—Dr. Chas. F. Hicks, Welch, W. Va. Six Hundred Gun Shot Wounds in Mining Practice. Conclusions. (Illustration of Muscles.)

February 5—Dr. Frank Warner, Columbus. A Study of the Relationship of Arteriosclerosis to Malignancy. (Illustrated.)

February 12—Dr. Wm. M. Doughty, Cincinnati, and Mr. J. R. Kelley (Kelley-Koett). The Roentgen Ray, Its Use and Abuse, Demonstrations and Development of Plates.

February 19—Dr. Hugh W. MacMillen, Cincinnati. Teeth, Their Comparative Anatomy, Uses, Care and Diseases. (Illustrated.)

February 26—Dr. Robert C. Heflebower, Cincinnati, Ohio. Comparative Study of the Eyes. (Continued.) (Illustrated.)

March 5—Dr. Wm. Seaman Bainbridge, New York City. To be announced.

March 12—Dr. Joseph A. Stucky, Lexington, Ky. Mountain Ophthalmia. Report to Kentucky State Investigating Commission as to Cause, Frequency and Cure. (Illustrated.)

March 19—Dr. Frank U. Swing, Cincinnati. Artificial Eyes and Lenses, Old and New. (Illustrated.)

March 26—Dr. Eben B. Shewman, Cincinnati. The Kidney, Its Anatomy with Reference to Its Function and Pathology. (Illustrated.)

April 3—Drs. Benjamin M. Ricketts, John H. Wilms and DeEnna D. DeNeen. Experiments and Demonstrations.

OKLAHOMA

New Hospital.—Dr. Henry A. Lile, Aline, is building a three-story fireproof hospital to cost about $10,000.

Laboratories Transferred.—The laboratories of the State Board of Health have been transferred from Norman to Guthrie.

Drug Addicts.—Dr. John W. Duke, Guthrie, state commissioner of health, is collecting data on the number of drug addicts in the state who are affected by the Harrison Act.

Personal.—Dr. William M. Cott, Okmulgee, has succeeded Dr. Virgil Berry, Henryetta, as health officer of Okmulgee County.——Dr. Percy A. Smithe, Enid, who joined the American Red Cross in Vienna shortly after the outbreak of the war, has returned to the United States.——Dr. Edward B. Mitchell, Lawton, has returned after a year in Florida.——Dr. William M. Taylor, Oklahoma City, is slowly recovering from the serious injuries sustained in a collision between his automobile and a passenger train.

PENNSYLVANIA

Personal.—Dr. Clinton T. Saylor, Rockwood, who was operated on recently at the Memorial Hospital, Johnstown, for appendicitis, is reported to be convalescent.

Hospital Cornerstone Laid.—The cornerstone of the hospital of the Masonic Home, Elizabethtown, was laid with impressive ceremonies, September 29. Gifts of $52,000 were announced for the hospital, which is being erected as a memorial by the Freemasons of Philadelphia, and is to consist of five buildings to cost altogether about $175,000.

Cannot Provide for Consumptives.—There are said to be 1,107 sufferers from tuberculosis in Pennsylvania on the waiting list of the three sanatoriums of the state. These sanatoriums at Mont Alto, Cresson and Amburg are overcrowded, and the State Board of Health cannot begin the erection of more buildings because of the cutting down of the appropriation for this purpose.——The 115 tuberculosis dispensaries scattered through the state treat on an average of 10,000 cases a day, and in addition a state nurse makes stated calls at the home of each of these patients.

Sixty Typhoid Cases at Shippensburg.—Sixty cases of typhoid fever and twenty-eight suspects were reported October 7 to the State Health Department from Shippensburg. Six health department engineers and nurses are now on the ground aiding the health authorities of the town. A temporary filter plant has been constructed, and an emergency hospital for the treatment of the more advanced cases established. The source of contagion has now been definitely located in the water supply of the town, which comes from springs on state forest reservation plots. The Cumberland Valley State Normal School has been affected, and four girls, two residing in Carlisle and two in Harrisburg, have been sent to their homes. Other cases are being treated in the school infirmary.

Philadelphia

Endowment for Medical College.—It was announced at the formal opening exercises of Hahnemann Medical College, September 27, that the institution would receive at least $50,000 as an endowment through the will of the late Dr. Edward R. Greggs of Pittsburgh.

Union Meeting of Pediatric Societies.—A joint meeting of the Philadelphia, New York and New England pediatric societies will be held in Philadelphia, November 8 and 9. A series of clinics is being arranged, and through the courtesy of the local committee an invitation is extended to the members of the American Association for the Study and Prevention of Infant Mortality.

Hospitals Plan Whirlwind Campaign.—The Children's Hospital campaign for a fund of $500,000 will be under the direction of E. T. Stotesbury, Arthur H. Lea and other prominent citizens, and will begin on October 18, to last ten

days.——The Mercy Hospital and School for Nurses, which sets $150,000 as the goal, will start on October 20. The superintendent of the hospital, Dr. R. B. Jackson, sent a letter to the Children's Hospital Committee pleading with it to select another date, as the Mercy Hospital had been planning its campaign for the last six months.

Child Federation Election.—Dr. Joseph S. Neff, former director of the Health and Charities, was chosen president of the Child Federation, at its annual meeting, October 7. He succeeds Edward W. Bok, who declined reelection, but was chosen honorary president. F. Wallis Armstrong, Dr. Samuel McClintock Hamill and Francis S. McIlhenny were elected vice presidents, and J. Ernest Richards, treasurer. The board of directors will include the officers and the following: Albert P. Gerhard, John D. Johnson, George C. Shane, Dr. Henry D. Jump, Mrs. Thomas Robins, Mrs. Alfred Stengel, Charles Z. Tryon and Ernest L. Tustin.

Personal.—Dr. Raymond T. Wayland has gone to San Jose, Calif., where he has been placed in charge of the construction of a large hospital.——Dr. Ruth Webster Lathrop, professor of physiology in the Women's Medical College of Pennsylvania, Philadelphia, has been nominated by the faculty to fill one of the six vacancies in the board of education.——Dr. William C. Hollopeter, for fifteen years professor of pediatrics in the Medico-Chirurgical College of Philadelphia, has retired from the teaching faculty.——Drs. David N. Vogt, Joseph P. Garvey, Robert W. Rubin and Samuel L. Immerman have passed the examination of the Civil Service Commission for resident physician of the bureau of health.——Dr. William B. Swartley sailed September 18 to join the American Ambulance Hospital at Paris.

National Committee Campaign on Feebleminded.—Headquarters have been opened in the Empire Building by the recently formed Committee on Provision for the Feebleminded, a national organization formed to disseminate knowledge concerning the menace of feeblemindedness, and to initiate methods for its eradication. The work of the committee is being financed by private subscriptions. The board of directors includes: chairman, Dr. Milton J. Greenman, director of Wistar Institute; R. Bayard Cutting, member board of directors of training school at Vineland, New Jersey; Dr. Charles H. Frazier, president of the Pennsylvania Public Charities Association, Philadelphia; Bleecker van Wagenen, member of the board of directors, training school at Vineland, New Jersey; Mrs. C. C. Rumsey, New York City; Henry V. Osborne, judge court of common pleas, Newark, N. J.; Mrs. Caroline B. Wittpenn, Hoboken, N. J.; E. R. Johnstone, superintendent of the training school, Vineland, N. J., and Dr. Thomas W. Salmon, medical director of the National Committee for Mental Hygiene, New York City.

TENNESSEE

Public Health Sunday in Nashville.—Prominent physicians occupied the pulpits in the National Church, October 17, and preached the gospel of sanitation and health preservation.

Health Inspection Tour of Middle Tennessee.—Dr. Reese Q. Lillard, Nashville, secretary of the State Board of Health, accompanied by Dr. Olin West, Nashville, of the Rockefeller Sanitation Committee, and Dr. John A. Ferrell, New York City, assistant inspector-general of the International Health Commission, started on a health inspection tour of middle Tennessee, September 28.

Reporting Tuberculosis.—In a report, September 16, to the city commission, it was shown that the physicians of the city had reported only nine cases of tuberculosis in Chattanooga during the previous four months, while there had been forty-five deaths from the disease. The state law makes it compulsory on the part of physicians to report this disease, and they were severely criticized by Commissioner Huffaker for their failure to do so. The names of tuberculosis patients are kept secret by the department.

Personal.—Dr. Heber W. Jones, Memphis, who has been seriously ill in the Baptist Memorial Hospital, is reported to be out of danger.——Dr. Samuel W. Hodge, Knoxville, has returned after several months' work against typhus fever in Serbia. For his services, Dr. Hodge received the decoration of the cross of the Order of St. Savo from King Peter I.——Dr. J. Victor Henderson, Lafollette, company physician for the Lafollette Coal and Iron Company for the last nine years, has resigned, and after a term of postgraduate study in the East, will practice in Knoxville.

UTAH

Personal.—Dr. David W. Henderson, Brigham, has been appointed local physician for the Ogden-Logan and Idaho Electric Railway Company.

New State Officers.—At the twenty-first annual meeting of the Utah State Medical Association held in Salt Lake City, September 28 and 29, under the presidency of Dr. Robert S. Joyce, Ogden, the following officers were elected: president, Dr. Eugene W. Whitney, Salt Lake City; vice presidents, Drs. Lashbrook B. Laker, Eureka; Charles F. Osgood, Ogden, and Frederick Dunn, Springville; treasurer, Dr. Howard P. Kirtley, Salt Lake City (reelected); councilor, second district, Dr. Thomas C. Gibson, Salt Lake City (reelected); and delegate to the American Medical Association, Dr. Solomon G. Kahn, Salt Lake City (reelected). Salt Lake City was selected as the next place of meeting.

WEST VIRGINIA

Typhoid Epidemic.—Charleston is reported to have the worst epidemic of typhoid fever which has been experienced in many years. The health officer estimates that nearly fifty cases are under treatment. No cause for the epidemic has as yet been found.

Change of Address.—Dr. Samuel L. Jepson, for two years secretary of the State Board of Health, was appointed, under the new law, as state health commissioner, and has removed his office from Wheeling to Charleston, where he occupies rooms in the Capitol Building.

Society Suggests Expansion.—At the August meeting of the Mercer County Medical Society, held at Bluefield, the first steps were taken toward the organization of an association to include Mercer and McDowell counties, W. Va., and Tazewell, Russell and Wise counties, Va.

Hospital Association Formed.—The West Virginia State Hospital Association, composed of physicians and superintendents of state hospitals, was organized at Charleston, September 21, with an initial membership of twenty-five. Dr. George C. Schoolfield, Charleston, was elected president, and Dr. Wade H. St. Clair, Bluefield, secretary-treasurer. The next meeting will be held in Wheeling.

Practice of Medicine and Surgery Defined.—The new law of West Virginia enacted in 1915 says: "The term, 'Practice of Medicine and Surgery' as used by this act shall be construed to be treatment of any human ailment or infirmity by any method. To open an office for such a purpose or to announce to the public in any way a readiness to treat the sick or afflicted, shall be deemed to engage in the practice of medicine and surgery, within the meaning of this act."

Hospital Internship Not the Equivalent.—The West Virginia Public Health Council (formerly the State Board of Health) has refused to accept a hospital internship as the equivalent of a year of practice required to those seeking licenses through reciprocity. A year of actual practice is considered necessary to establish a physician's character and ethical conduct. The council is considering the advisability of extending the requirement to two years of actual practice.

WISCONSIN

More Money Needed for Sanatorium.—Bonds were voted by the Milwaukee County board last month for an additional $160,000 which is needed for the Muirdale, the new county tuberculosis sanatorium.

Personal.—Dr. Austin O. Olmstead, Green Bay, who has been critically ill in a local hospital for two months, has recovered and resumed practice.——Dr. Samuel D. Greenwood, Menasha, fractured his arm at the elbow while cranking his automobile, September 30.

Medical Women Meet.—At the annual meeting of the Wisconsin Women's Medical Society held in Milwaukee, October 5, Dr. Mary Piper Houck, La Crosse, was elected president; Dr. Minnie M. C. Hopkins, Oconto, vice president; Dr. Ada B. Chandler, Pardeeville, secretary, and Dr. Ella Chaffee Fay, Whitewater, treasurer. The next meeting will be held in La Crosse, and at this time the medical women of Iowa and Minnesota will be invited to meet with the women physicians of Wisconsin.

CANADA

Hospital News.—The Toronto branch of the Red Cross Society has raised during the past hospital year, ending

September 30, $166,872.——The cornerstone of a new hospital was laid at Port Hope, Ont., October 8. It is to cost $25,000.

More Ontario Doctors for the Front.—Forty doctors from the Toronto military division have been selected by Lieut.-Col. Fredk. W. Marlow for the Royal Army Medical Corps, and they have been ordered to prepare to leave at once. Toronto General Hospital will lose a large part of its house staff as many of the senior house physicians have volunteered and been accepted for overseas service.

Personal.—Dr. Wm. Norman Gilmour, Brockville, Ont., was in Australia when war broke out. He went at once to South Africa and joined the forces under General Botha, afterward proceeding to England, where he joined the R. A. M. C.——Dr. George Musson, Chatham, Ont., has been appointed medical officer of health in that city in succession to the late Dr. William R. Hall. Dr. Musson is at present in France.

Ontario Medical Commission Gets to Work.—Notice has appeared in the public press stating that the commission will hold a public session in the Parliament buildings, Toronto, October 16. The object of this meeting will be to ascertain what bodies or individuals wish to present their views to the commissioner. It is the desire of the commissioner to be in possession of the views of those concerned before entering on any contentious questions.

Bruce Returns to Toronto.—Speaking of Lieut.-Col. Geo. G. Nasmith, sanitary officer with the First Canadian Overseas Force, and formerly chief of the laboratories of Toronto, Lieut.-Col. Herbert A. Bruce, on his return to Toronto, states Dr. Nasmith sent the first report to British headquarters on the gases used when the Germans broke through at Langemarck. Dr. Nasmith's opinion has since proved to be correct, and his recommendations the best means for counteracting their effects. His suggestions were immediately adopted by the War Office. Dr. Bruce made a tour of inspection of Canadian overseas hospitals. Canada has over 5,000 beds in England and about 5,000 beds in France; and there are no hospitals in France superior to the Canadians', is his opinion. He visited No. 2 Canadian Hospital at Treport which is in command of Major J. T. Clark, a former practitioner in Toronto. Major Clark has worked out a particularly good method of admitting patients which enables them to be handled with great rapidity, and his method has been adopted by a number of British hospitals. Dr. Bruce also visited McGill Base Hospital at Camiers.

GENERAL

Meeting of Pellagra Association.—The National Association for the Study of Pellagra will hold its third triennial meeting at Columbia, S. C., Oct. 21 and 22, 1915. An excellent program, covering a complete survey of the pellagra situation, has been arranged.

New York and New England Surgeons to Meet.—The twenty-fifth annual meeting of the New York and New England Association of Railway Surgeons will be held at the Hotel Astor, New York City, October 21 and 22, under the presidency of Dr. William H. Marcy, Buffalo.

Red Cross in Mexico Recalled.—Telegraphic instructions have been sent from Washington to close the Red Cross station in Mexico City and directing Charles J. O'Connor, the Red Cross representative in the Mexican capitol, to return to the United States. The Carranza authorities declare that relief work is no longer necessary in the city of Mexico.

Annual Meeting of American Roentgenray Society.—At the annual meeting of the American Roentgenray Society, held at Atlantic City, September 22 to 25, the following officers were elected: president, A. W. Crane, Kalamazoo, Mich.; vice presidents, W. B. Bowman, Los Angeles, and A. P. Gibbs, Columbia, S. C.; secretary, W. F. Manges, Philadelphia; treasurer, W. A. Evans, Detroit.

Erie Surgeons Hold Meeting.—The annual meeting of the Association of Erie Railway Surgeons was held in Buffalo, September 30 and October 1, under the presidency of Dr. John D. Zwetsch, Gowanda, N. Y. Dr. Salem Heilman, Sharon, Pa., was elected president; Dr. Rufus S. Harnden, Waverly, N. Y., vice president, and Dr. Bertis R. Wakeman, Hornell, N. Y., secretary-treasurer (reelected).

Antituberculosis Conference.—At the third annual meeting of the Mississippi Valley Tuberculosis Conference held in Indianapolis, September 29 to October 1, it was decided to drop Montana, Wyoming, Colorado and Idaho from the conference territory. There were 640 delegates who registered during the session. It was decided to hold the 1916 conference in Louisville, Ky., and the following officers were elected: president, Mr. Walter D. Thurber, Indianapolis; secretary-treasurer, Dr. Dunning S. Wilson, Louisville, Ky.; and councilors, Mr. Courtenay Dunwiddie, Cincinnati; Miss Carol F. Walton, Ann Arbor, Mich., A. W. Jones, Jr., St. Louis; Dr. Walter J. Marcley, Minneapolis, and Dr. Ethan A. Gray, Chicago.

Meeting on Prevention of Blindness.—The first annual meeting of the National Committee for the Prevention of Blindness will be held in the Russell Sage Foundation Building, New York, Nov. 4, 1915. Among the speakers who will be present are Ex-President William H. Taft and Dr. George E. deSchweinitz, Philadelphia. The national committee has a number of exhibits which are loaned to individuals or organizations desiring to promote the work of the prevention of blindness. The committee also distributes a large number of publications. In the year 1914-1915 about 100 blind children, victims of ophthalmia neonatorum, were sent to the various schools for the blind. The number of such children, however, is decreasing as shown by the figures of this society; from 23.9 per cent., for 1910-1911, to 15.1 per cent., in 1914-1915.

Red Cross Christmas Seals.—Over one-half million dollars was raised last year in the United States from the sale of Red Cross Christmas Seals. Much good is derived from the educational influence of the seal campaign as well as by the work which is supported by this huge sum. A banner is presented to the winner making the largest sales among villages, towns, cities, or counties in each of ten groups of localities, classified according to the amount of their population. A similar banner is awarded to the state in each of three groups which sells the most seals per capita. Announcements of the winners in the pennant campaign will be made April 1, 1916. Literature concerning the campaign is furnished by the National Association for the Study and Prevention of Tuberculosis, 105 East Twenty-Second Street, New York, which together with the American Red Cross, conducts this campaign.

FOREIGN

Danish Periodical Index.—A Copenhagen exchange states that the librarians of Denmark have made arrangements to publish an annual index of the contents of the periodicals published in Denmark. There are about 125 on their list.

Deaths in the Profession Abroad.—At Florence Hugo Schiff, professor of general chemistry and brother of the physiologist Moritz Schiff. He was one of the founders of the *Gazetta clinica italiana*.——A. Oppel, professor of anatomy at the University of Halle, aged 53.

WAR NOTES

River Ambulances of the Italian Red Cross.—Six steam barges have been fitted up for this purpose and are doing good service on the Po and Mincio rivers. They take the wounded to the base hospitals at Cremona, Mantua and Piacenza.

Anticholera Vaccination in Italy.—A decree issued, August 22, makes anticholera vaccination compulsory in the army and provides for its application to certain categories or groups of persons in the civilian population as the authorities may deem it necessary. The expense is to be borne by the state.

Notification of Dysentery at Naples.—The prefect of the province of Naples has ordered that all cases of dysentery and those even suspected of dysentery should be reported immediately to the authorities under severe penalty. It is hoped in this way to detect and check epidemics of dysentery and cholera in their incipiency.

The Quirinal Transformed into a Hospital.—The entire first floor of the royal palace at Rome has been transformed into a hospital with 206 beds for the wounded. The famous halls, eleven in number, have been named for the first eleven soldiers decorated for conspicuous gallantry. The queen has planned and equipped this hospital, which is unique in its artistic setting and historied past. Dr. E. Scali is medical chief of the hospital.

BERLIN LETTER

Berlin, Sept. 15, 1915.

Personal

September 11 Leipzig lost its municipal physician for children, Professor Taube, who died at the age of 63. Through his efforts Leipzig became the first German city to make provision for the children's welfare, especially extending protection to illegitimate children. In 1896 Leipzig instituted the so-called Leipzig system which provided municipal guardianship for these children. Taube further aided in procuring proper care for the nurslings.

The War

BANDAGE MATERIAL

The cessation of the importation of cotton threatened for a time to embarrass seriously the manufacture of bandage material. Both in school and at home the children, and the women as well, began to make lint, and physicians were advocating the use of old bandages which had been disinfected thoroughly. Since then the war ministry has given notice that no fear need be had of a shortage of bandage material and that it was unnecessary for any one to spend time making lint. In fact, the use of lint has been forbidden because the material from which it is made can be made use of to good advantage for other purposes.

RESTRICTION OF SALE OF LIQUOR

The activities of the authorities to regulate the use and distribution of foods have been extended recently to curtailing the sale of whisky and other spirits. The police authorities of Berlin have forbidden such sale between 9 p. m. and 9 a. m. in places in which the service is automatic or where it is rendered by women. No one is allowed to sell any liquor to intoxicated persons. Drug stores may continue to sell brandy for medicinal purposes. The punishment for failure to observe these rules is imprisonment or a monetary fine as high as 10,000 marks ($2,500).

MEASURES AGAINST VERMIN

Continued effort is being made to free the soldiers from vermin and to prevent the spread of epidemics by flies and other insects. Disinfection stations are being built everywhere along the eastern border, usually in the immediate vicinity of railroad depots. Eight such institutions have been constructed in various cities and villages of East Prussia and Poland, and two are now being built in Bavaria near the southern border. Each institution consists of eight individual buildings in which 500 men can be taken care of at one time. After a delay of eight hours these troops are transported further. Each institute can take care of 12,000 men in each twenty-four-hour period. Each of the eight individual buildings comprising such institutions is divided into a clean and an unclean part so that mingling of people is impossible. A chief surgeon is in charge, with two assistant surgeons and three inspectors on his staff. A central powerhouse provides the steam necessary for disinfection and light, power and everything else needed in the institution. Two hundred tons of coal are burned daily in each powerhouse. Laundries, kitchens and administrative quarters are provided. The officers are housed in a building containing bath tubs.

The plan of procedure in each institution is as follows: At the entrance, on the unclean side, every man receives a white net, in which he can place his clothing, and a brown net in which are to be placed other than cloth wearing apparel, such as his helmet, his boots, leggings, knapsack—anything to be sterilized by dry heat. A smaller net is given out in which are placed articles of value such as note books, tobacco, portfolios, etc., and finally a distinguishing mark is placed around the neck of the soldier containing a number which corresponds to that found on each net. Each man does his own packing. The nets containing valuables are gathered together in larger nets. The soldier then enters the institution, having first been given a pair of slippers, deposits the nets containing the leather goods and valuables at one window. At another window he deposits his watch, tobacco, articles of food and anything which does not need to be disinfected. He steps into the waiting room of the unclean side. One hundred and twenty-five men disrobe and each places his clothing in the white net which is taken to the large room in which are the steam disinfecting apparatus. Provision is also made for hair cutting so that soldiers who are in need of tonsorial services may receive them. Each man then takes a shower-bath for fifteen minutes, after which he is given a towel. In ninety minutes the 125 men are cleansed thoroughly, are given new slippers and underwear and pass on to the clean side where they receive their disinfected clothing. In six hours 500 men have passed from the unclean to the clean side, and the disinfection of their leather goods and valuables having now been completed, these articles are returned to them. After eight hours these 500 men have left the institution. During their stay on the clean side the soldiers are also given meals, officers receiving the same food as privates. Each disinfecting station is provided with clean clothes for 100,000 men. All worn-out clothing is replaced. Any article which may be the carrier of vermin or which has been badly worn by usage, and therefore is not worth while disinfecting, is replaced. The soldiers then march into disinfected railway coaches. The employees at each disinfecting institute number 380. Special provision is made for the transportation of horses and trains. The detail in charge consists of one staff officer, six commissioned officers, forty-two noncommissioned officers and 910 men.

Ample provision has been made for water at each place. In Alexandrowo two wells, each 38 meters in depth, were constructed and these furnish sufficient water. At other places river water had to be used, the water having been previously sterilized. The outflow from the institute is also disinfected and conveyed into some running stream. To secure efficient service, good system is absolutely necessary. Everything is provided for and everything is done at a certain time and in a certain way. Bell signals are used to give notice of everything that needs to be done. Everything that is not to be used again is destroyed by fire in a specially provided incinerating oven.

The Russian prisoners are very hard to handle in this regard as they do not cooperate with the German authorities in carrying out these disinfection methods. They bury their vermin infested clothing, or, if possible, sell it to their countrymen in other companies. The reason for such action is not very apparent, although superstition may be at the bottom of it. Therefore, it is unfortunately not possible to carry out these plans for disinfection as effectively among the many thousands of prisoners as one would desire.

It has been determined that the Russians display a much greater resistance to typhus than the Germans. Whereas the mortality among the Russians is only 2 per cent., the mortality among the German doctors and nurses is about — per cent. [This percentage is deleted from the original letter by the censor.] However, strenuous efforts are now being made to rid the Russian prison camps of vermin. Each person is disinfected once a week and it is expected that before long the authorities will have full control of the situation.

It is apparent from what has been said that the entire eastern front has been converted into a huge filter to guard against the spread of epidemics and the carrying of disease. Each man in the army, from the general down to the private, prisoners as well as our own troops, must conform to the regulations made by the military and sanitary authorities before he can enter the German empire.

PARIS LETTER

Paris, Sept. 23, 1915.

The War

QUESTIONS AFFECTING THE WORK OF AN AMBULANCE UNIT AT THE FRONT

At one of the last sessions of the Sociéte de chirurgie de Paris, Dr. R. Picqué, surgeon of the hospitals of Paris, who, since the first day of mobilization, that is, for thirteen months, has been in command of the same ambulance unit, read an interesting paper, showing how ambulances of the old type may be so improved by the aid of the resources of the medical service as to be adapted to the novel and imperative necessities of the present war. The leaving of considerable initiative to the medical heads and the supplying of all their demands have permitted the rapid transformation of obsolete organizations into formations in which all surgical operations can be performed. If circumstances permit the units to remain stationary for a considerable length of time, they can be extended into veritable front-line hospitals without losing their essential mobility.

Picqué was therefore surprised to hear at the meeting of the society, during numerous discussions on military surgery, the practical unanimity with which speakers advocated the rapid removal of the wounded toward hospitals at the rear provided with competent staff and surgical equipment.

He was particularly surprised to hear this doctrine applied to patients with important fractures, whose chances for the preservation of their limbs, and even their lives, would be so much enhanced by immediate surgical treatment in the ambulance. In his opinion the present war, from the outset, has shown the importance of intensive surgery of the first line; and the long defensive warfare has singularly favored the extension of this first-line surgery. Such surgery today is possible, not only for surgeons furnished with one of the modern automobile surgical ambulances, not only for those whose good fortune it is is to be able to install themselves in buildings, such as colleges, barracks or châteaux, easily transformable into first-class hospitals, but even for surgeons who, like Picqué, have at their disposal only an isolated mill. With the resources which the medical service offers without red tape to those who wish to make use of them, it is easy for any man of initiative to create an organization which meets all the necessities of present day surgery. In fact, Picqué has seen almost 10,000 wounded men pass through his transformed ambulance to be operated on by him under very satisfactory conditions, the operations including all the procedures that one may be called on to employ in times of war.

Dr. Delbet, professor of clinical surgery at the Faculté de médecine de Paris, while complimenting Dr. Picqué on his ingenuity and perseverance and the methodical way with which he has created his present organization, thinks there is notwithstanding a defect in the principle. Whatever Picqué may say, the organization has thus lost the essential character of an ambulance unit, namely, mobility. Moreover it is installed too near the firing line, that is, only 8 kilometers away. In warfare in which the troops are incessantly in motion, at 8 kilometers one is exposed to the fluctuations of combat; in the present war one is exposed to ordinary shells. The wounded greatly need rest and quiet; they have neither of these in the midst of the noise of cannonshot and the still more disagreeable noise of bursting shells. The distance at which the ambulance unit should be stationed, moreover, depends on the means of transportation. With horse-drawn vehicles, 8 kilometers is a long distance to traverse. It takes no more time to traverse 18 or 20 kilometers with an automobile. For these reasons the superior consulting commission of the medical service has demanded that surgical ambulance units provided with numerous automobiles for the transportation of the wounded should be placed 18 or 20 kilometers from the firing line.

Dr. Tuffier, agrégé professor in the Faculté de médecine de Paris and surgeon of the hospitals, likewise emphasizes the danger of ambulances placed too near the firing line. The operating rooms that he has seen installed at the Harazée and at the Four de Paris a few months ago have been nonexistent for several weeks, having been destroyed by the enemy's bombardment. Moreover, immobilized ambulance units, in order to act as real hospitals, ought to possess a considerable number of beds, while, if they accumulate many seriously wounded patients, they may be obliged to remove them too rapidly, which is infinitely more dangerous for the patients than if they had in the first place been sent farther on, 15 or 20 kilometers, before anything had been done for them.

IMPROVEMENT OF THE MEDICAL SERVICE

In response to suggestions made by M. Astier, senator from the department of the Ardèche, for the improvement of the medical service, M. Justine Godart, assistant secretary, has explained the plan of reform which he is putting in practice. In order to utilize more effectively the special abilities of physicians, he has ordered the regional directors of the medical services to report each month particulars with regard to the physicians in their respective regions—the name, the age, the specialty, etc. He has, moreover, recently consulted a commission composed of professional surgeons for the purpose of studying the best orthopedic methods of furnishing cripples with necessary apparatus within the shortest possible space of time. Competitive examinations and the utilization of the professional abilities of pharmacists, dentists and nurses have already been the subject of careful study.

WOUNDS OF THE HANDS BY SMALL PROJECTILES AND THE OPERATIONS WHICH THEY REQUIRE

At a recent session of the Académie de médecine Dr. E. Delorme, medical inspector general of the military medical service, called attention to the fact that manipulations and massage are often insufficient to reduce the deformities of the hand and fingers and the gross functional incapacities produced by wounds of the hands from small projectiles. Under such conditions it is often well to make use of restorative surgery. Amputation, which is the ordinary method of treating crooked, ankylosed and troublesome fingers, is acceptable, in Delorme's opinion, only when well-directed restorative orthopedic surgery has shown itself insufficient. The most important operations for the treatment of wounds of the hands consist of excisions of cicatrices, generally combined with disengagement or restoration of the tendons and reduction of stiffness, sometimes excision of articular extremities or calluses. Direct suture of the tendons being often impracticable, Delorme has recourse to various other well-known procedures. The care of the patients after these conservative operations is very important. It consists in progressive mobilization (passive and active) of the fingers, electricity, compression and massage of cicatrices, compression of edemas, etc.

THE FORM OF CRUTCHES

The minister of war has called the attention of the head physicians of all hospitals to the importance of the form of the crutches furnished or lent to men wounded in the legs. The straight crutch with a single cross piece, if badly padded or ill proportioned, frequently causes paralysis by compression of nerves.

A DUTCH FLYING HOSPITAL

The Dutch steamship *Batavier III*, from Amsterdam, has landed at Havre a flying hospital, organized by private subscription and placed under the command of Dr. Bierens of Haan, who has already directed organizations of this kind in the South African war of 1899-1901 and the Balkan wars. The staff comprises, besides Dr. Bierens, 4 physicians, 26 female nurses and 5 male nurses. This Dutch hospital unit, composed of 200 beds and capable of being moved in forty-eight hours, was sent to Paris, where it was received at the Saint Lazare station by representatives of the assistant secretary of the medical service and by Medical Inspector-General Dziewomski, director of the medical service of the military government of Paris.

AN AMERICAN GIFT

Mr. Frederick H. Allen of New York has just remitted to the president of the municipal council of Paris, in the name of the Committee of Mercy, of which Mr. Allen is president, the sum of 21,000 francs ($4,200) for the Oeuvre des trains de blessés.

LONDON LETTER

LONDON, Sept. 24, 1915.

The War

THE DEARTH OF ARMY SURGEONS

The difficulty of obtaining a sufficient number of surgeons for the army still remains a pressing problem. Though nearly a fourth of the whole profession is engaged in military duties in one form or another, there is still a shortage of nearly 2,000. A subject which has been under the consideration of one of the war emergency committees (bodies formed under the auspices of the British Medical Association) is the making of some arrangement in the event of physicians dying while on military service. It is thought that those who join would feel the sense of responsibility to their families less overburdening if some arrangement was in force for looking after their interests in the event of death. It has been agreed to form small local subcommittees, consisting of a few men of high standing in the local profession, to act as professional advisers and to collaborate with the legal executors of those who die. Their duty would be either to sell the practice on the best terms available or to see that the practice is carried on until some period after the war when practices again become salable. The Central Emergency Committee of the British Medical Association has issued an appeal to the public pointing out that physicians at the call of duty are going to assist in saving the lives and relieving the sufferings of their countrymen at the risk not only of death and injury but also of the loss of the means of livelihood on their return. While recognizing the right of every one to consult any physician he chooses, the committee appeals to all citizens not to give up their usual medical attendant on account of temporary absence on military duty. All the physicians who have left their practices have either appointed a locum tenens or arranged with neighboring physicians to carry on the work while away. The committee hopes that patients will inform any physician they

may consult that their own physician is absent on military service and that they intend to place themselves again under his care when the need arises on his return. The physicians who remain are willingly attending the patients of those on service on the distinct understanding that they shall not be asked to continue to do so after the war. Addressing a board of guardians (the bodies in the country who are entrusted with the care of the poor) a well-known consultant, Sir James Barr, said that all the medical work of the country could be done by physicians over military age and thus all the younger men released for foreign service. "Get men over military age for either part or whole time service for your work until the war is over," he said, "and you will thus be able to set all your young men free to serve their country as they will never have chance of doing again." If the number of men necessary cannot then be found, he considered that the only course would be to apply to the United States.

THE RESPONSE OF THE COLONIES

The manner in which the British self-governing colonies are voluntarily assisting the mother country in this critical hour is an object lesson to the world. Like ourselves, they are willing to make any sacrifices. The federal government of Australia has determined to augment the Australian General Hospital in France by an additional 1,040 beds, bringing the total number up to 2,000. The equipment will be undertaken in England, but the personnel will be obtained in the commonwealth. To staff the second portion of the hospital, thirty-six physicians, fifteen noncommissioned officers, eighty nurses and 170 orderlies will be required. In addition, physicians will be sought from time to time for reinforcements, and the organization of still another unit is under consideration. But, as in England, the demand for medical officers is greater than the supply.

HOSPITAL SHIP SUPPLIED BY NEW ZEALAND

One of the best hospital ships afloat is being equipped in New Zealand. A large steamer, the *Maheno*, is being utilized. Cabins have been removed and the saloon transformed. There are two special wards for five patients, an officiers' ward, a noncommissioned officers' ward and ten wards for the rank and file. One row of beds is composed of fixed cots, while a second is so constructed that the individual cot can be allowed to swing with the movement of the vessel or fixed by means of a metal plate dropping into a slot. It is proposed to admit the more seriously wounded into a special ward amidships, while the less serious cases will be in the space over the transom. The total number of beds for patients is 388, but if necessary the officers' and nurses' drawing room can be transformed into a ward of sixty additional beds. The patients will be received through iron watertight doors at the ship's side, at the level of the lower deck, and hoisted on stretchers which act as mattresses for the beds. Trolleys will be used to convey the stretchers along the passages, and capacious lifts to transfer them from the lower to the main or upper deck. The laundry is well equipped; there are superheated steam cauldrons, electric apparatus for ironing, drying centrifuges, etc. The most modern plant for sterilizing dressings and instruments has been provided, and there is a special system for the automatic delivery of sterilized instruments and dressings on sterile trays on which they are conveyed to the operation theaters. There are two operating theaters, the smaller for minor surgery. The larger is equipped in the latest fashion; white enamel and bright metal are everywhere in evidence. The Roentgen-ray room and the bacteriologic laboratory have been planned with great care. It is said that no field hospital can offer the wounded soldier greater comfort and security, and that few base hospitals are so well equipped.

FLY PLAGUE AT THE FRONT

It was foreseen that a plague of flies was to be expected both in Flanders and in Gallipoli, owing to the conditions inevitably associated with military operations. In Flanders elaborate precautions were taken and date back to April last —that is, before the commencement of the house-fly season, when a circular memorandum on "The Abolition of Flies in Camps, Billets and Hospitals" was issued by the director-general of medical services of the British forces in the field. He pointed out that within the area occupied by the British forces there were concentrated enormous numbers of men and horses, with the result that great quantities of stable manure and other waste organic matter were produced, and that in places along the line of the front there were many unburied bodies. He anticipated that in consequence flies in unparalleled numbers would appear in the course of the summer and autumn, unless adequate measures were taken to prevent breeding. The memorandum contained full instructions for the prevention of the fly plague, and among other fly poisons enumerated was the solution of sodium arsenite which has been recently employed with success in South Africa. Soon after the issue of this circular, a special entomologic commission for service in the field was appointed; it consisted of three well-known entomologists, Mr. Robert Newstead, F.R.S., professor of medical entomology, Liverpool University; Mr. R. W. Jack, government entomologist, Southern Rhodesia, and Captain E. E. Austen of the British Museum. The commission was instructed to study the question on the spot and to inquire into the efficacy of the measures for the suppression of flies adopted or projected. An extensive series of experiments was made with a view to ascertaining the best method of dealing with fly-breeding places which it might be impossible to destroy by fire. As a result, further recommendations were issued. Since then the commission has been continuously engaged in visiting all parts of the front in turn with a view to giving advice to sanitary officers and others. Visits have been paid to a large number of casualty clearing stations, field ambulances and advanced dressing stations, to the town of Ypres, to the trenches and to farms and other billets within range of the enemy's guns. The flies to be dealt with have been house-flies, bluebottle flies, and greenbottle flies. The places where the insects were found to be breeding, and the best practical means for checking them were indicated. In the trenches themselves house-flies have been less numerous than bluebottle and greenbottle flies, although in certain places in the war zone in France and Belgium house-flies have been more numerous than could be wished. The blow-flies, blue and green, have presented greater difficulties. Dr. Shipley has shown that there are two species of bluebottle or blow-flies, *Calliphora erythrocephala* and *Calliphora vomitoria*. They are outdoor flies which enter houses in search of a suitable place to deposit their eggs, by preference on fresh or decaying meat, but even on wounds. The habits of the greenbottle fly, *Lucilia caesar*, are similar, but it is said to prefer fish. Though no practical means for destroying these flies in the trenches on a wholesale scale have been devised, it has been found possible to drive them away by periodic spraying with a suitable fluid.

The Fear of Premature Burial

The fear of premature burial leads from time to time to strange requests. In the latest case a maiden lady bequeathed $100 to her physician on condition that he should see that her throat was cut from ear to ear before burial.

Marriages

CAPTAIN WILLIAM STEVENS SHIELDS, M.C., U. S. Army, to Miss Eileen Goggan, Galveston, Texas, at Dallas, Texas, September 25.

JOSEPH EDWARDS KERNEY, M.D., Providence, R. I., to Miss Bertha Pendorf of Oneida, N. Y., at Philadelphia, September 25.

WELCOME BLAINE TILTON, M.D., to Miss Violet Deming, both of Clinton, Okla., at Oklahoma City, Okla., September 28.

STERLING BUNNELL, M.D., San Francisco, to Miss Maude Compton of Santa Rosa, at Berkeley, Calif., September 22.

RUSSELL ADAMS SCOTT, M.D., Evanston, Ill., to Miss Julia Beauchamp Hinkle of Hawesville, Ky., October 14.

HARRY MARSHALL ARMITAGE, M.D., Chester, Pa., to Miss Emily Van Gordon Pudan, of Yale, Okla., recently.

BURLINGTON EARL SMITH, M.D., to Miss Annette Florence Erickson, both of Portland, Ore., September 22.

WILLIAM LEE GILLS, M.D., Roanoke, Va., to Miss Elsie Louise Jones of Cheshire, Conn., September 15.

SELMER MARTIN JOHNSTON, M.D., Buhl, Minn., to Miss Louise de Hass of St. Paul, September 18.

RAY RANNEY KULP, M.D., Davenport, Iowa, to Miss Marie Miller of Fort Wayne, Ind., October 12.

ALBERT ALLEN, M.D., to Miss Agnes Marguerite Cross, both of Los Angeles, September 22.

SAMUEL BELL, M.D., to JEAN A. VERNIER, M.D., both of Detroit, August 13.

Deaths

John Gaunt Brooks, M.D. Jefferson Medical College, 1868; aged 74; formerly a Fellow of the American Medical Association; a charter member and president of the Kentucky State Medical Association in 1887; Southwestern Kentucky Medical Society and Paducah Medical and Surgical Society; commissioned as traveling physician of the Queen of the Hawaiian Islands for the islands of Maui, Molokai and Lanai; for several years a member of the City Council and of the Board of Education of Paducah and of the health boards of Paducah and McCracken County; for more than twenty-seven years a director of the City National Bank of Paducah; died in a sanatorium in Louisville, September 25, from fatty degeneration of the heart. At a meeting of the McCracken County Medical Association, September 25, it was decided to prepare a resume of Dr. Brooks' achievements as a physician, for publication in the Kentucky State Medical Journal.

Edward Nelson Tobey, M.D. Harvard Medical School, 1901; aged 44; a member of the Massachusetts Medical Society; instructor in tropical diseases in the St. Louis University since 1914; demonstrator and research assistant in the Liverpool, England, School of Tropical Medicine in 1906-1907; assistant in bacteriology in his alma mater from 1907 to 1911; instructor in tropical medicine in the Harvard Summer School of Medicine from 1908 to 1910; instructor in pathology in St. Louis University from 1911 to 1914 and thereafter instructor in tropical diseases; assistant city pathologist and bacteriologist of St. Louis; who had been making an investigation of tropical fever in British Honduras; is believed to have been drowned when the steamer *Marowijne* of the United Fruit Company's line, on which he sailed from Belize, August 13, was lost at sea during the hurricane of August 16.

Samuel Kennedy Spalding, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1874; Bellevue Hospital Medical College, 1882; aged 68; of Omaha; a member of the staff of St. Joseph's Hospital, Omaha; neurologist to the Omaha General Hospital; Professor of Nervous and Mental Diseases in the John A. Creighton Medical College, Omaha; for several years chief of the Douglas County, Neb., insanity board; from 1896 to 1899 Health Commissioner of Omaha; and for several years treasurer of the Board of Education; a veteran of the Civil War; while attending the national encampment of the Grand Army of the Republic in Washington, D. C., was stricken with cerebral hemorrhage, September 28, and died the next day.

John Thomas Gibbons, M.D. College of Physicians and Surgeons in the City of New York, 1889; aged 50; a member of the Association of Military Surgeons of the United States; Major-Surgeon of the Forty-Seventh New York Volunteer Infantry during the Spanish-American War with service in Porto Rico; a member of the staff of St. Catherine's and Bushwick hospitals, Brooklyn, died at his home in that city, October 2, from heart disease.

Stuart Whedon Smith, M.D. University of Michigan, Ann Arbor, 1877; aged 64; a graduate in pharmacy; for twelve years a practitioner of Port Huron, Mich., and later of Denison, Texas, where he made a specialty of diseases of the eye, ear, nose and throat; consulting oculist to the Missouri, Kansas and Texas railroad; died at his old home in Port Huron, Mich., September 24.

William Alexander Graham, M.D. Louisville, Ky., Medical College, 1892; aged 56; a member of the Medical Association of the State of Alabama; formerly president of the Fayette County Board of Censors, county health officer, and secretary and treasurer of the Fayette County Medical Society; died at his home in Fayette, Ala., July 12, from angina pectoris.

Kenneth Frank Junor, M.D. New York University, New York City, 1886; aged 69; of Brooklyn; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; for several years a missionary of the Presbyterian Church in China and afterward a clergyman of New York City; died in Toronto, Ont., September 26.

Andrew C. Saylors, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1894; a member of the State Medical Association of Texas, a practitioner and druggist of Bynum, Texas; who was stabbed and seriously wounded in an affray in Bynum, in December, 1914, and afterward shot and killed his adversary; was shot and killed at Hillsboro, Texas, October 2.

Frederick Fillmore Burtis, M.D. Albany, N. Y., Medical College, 1898; aged 38; of New York City; formerly city physician and police physician of Schenectady, N. Y., and coroner's physician and deputy coroner of Schenectady County; surgeon of the Panama Railroad and Steamship Company's steamer, *Advance*; died on board that ship, September 6.

Robert H. Hews, M.D. University of Buffalo, 1874; aged 70; of Rockwell City, Iowa; local surgeon of the Illinois Central and Chicago, Milwaukee and St. Paul systems and a member of the Municipal Board of Health; died September 11, at Long Beach, Calif., where he had gone ten days before on account of ill health.

Warwick Evans, M.D. Georgetown University, Washington, D. C., 1852; aged 87; a Fellow of the American Medical Association; professor of anatomy in his alma mater for several years, beginning in 1856; said to be the oldest practitioner in Washington; died at his home September 30, from heart disease.

Luther Hern Keller, M.D. College of Physicians and Surgeons, Baltimore, 1875; aged 63; of Hagerstown, Md.; a Fellow of the American Medical Association; a specialist on diseases of the ear, nose, and throat; died in the Washington County Hospital, Hagerstown, September 30, from heart disease.

Andrew Victor Jova, M.D. College of Physicians and Surgeons in the City of New York, 1883; aged 56; a Fellow of the American Medical Association; visiting physician to St. Luke's Hospital, Newburgh; died at his home in Newburgh, N. Y., September 20, from tubercular laryngitis.

William G. Webb (license, years of practice, Ohio, 1898); aged 79; of Cameron, Ohio; a Fellow of the American Medical Association; for fifty-five years a practitioner; died in the Ohio Valley General Hospital, Wheeling, W. Va., September 27, a few days after a surgical operation.

Samuel Stewart Marr, M.D. Georgetown University, Washington, D. C., 1876; aged 71; for more than forty years in the employ of the General Land Office, Washington, D. C., as chief of the Railroad Division and later as law clerk; died at his home in Washington, September 26.

Mark Dunklin Sullivan, M.D. College of Physicians and Surgeons in the City of New York, 1906; aged 39; a member of the South Carolina Medical Association, and a practitioner of Pelzer; died in Greenville County, S. C., recently from heart disease.

William L. Parmenter, M.D. Homeopathic Medical College, Cleveland, 1873; aged 81; for forty-two years a practitioner of Buffalo; a member of the Buffalo Academy of Medicine; died in Port Stanley, Ont., September 16, from anemia.

Marquis Lafayette Johnson, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1901; aged 67; a member of the Medical Association of the State of Alabama; of Natural Bridge, Ala.; died at Nauvoo, Ala., June 25, from diabetes.

Prudence Fenneman, M.D. Cleveland Homeopathic Medical College, 1899; aged 51; for thirty years a practitioner of Hamilton, Ohio; died at the home of her sister in Canfield, Ohio, September 22, from carcinoma of the kidney.

Charles Louis Carriere, M.D. Homeopathic Medical College of Missouri, St. Louis, 1871; aged 76; for more than half a century a clergyman, and for forty-three years a practitioner of St. Louis; died at his home, September 17.

Mattie Virginia Seams Lee, M.D. Howard University, Washington, D. C., 1911; aged 41; a colored practitioner of Washington, D. C., and later of Charleston, W. Va.; died in Asheville, N. C., August 8, from pulmonary tuberculosis.

William Sheldon Clark Perkins, M.D. College of Physicians and Surgeons in the City of New York, 1860; aged 78; a member of the Connecticut State Medical Society; died at his home in Norwich, Conn., August 7, from diabetes.

Lester R. Lantz, M.D. American Medical University of Pennsylvania, Eclectic, Philadelphia, 1879; aged 55; of Wyalusing, Pa.; died suddenly from cerebral hemorrhage while making a professional call, September 21.

John A. Currie, M.D. Memphis Hospital Medical College, Memphis, Tenn., 1889; aged 56; of Memphis; a member of the Tennessee State Medical Association; died in the Baptist Memorial Hospital, Memphis, September 27.

Payton Chester Madison, M.D. College of Physicians and Surgeons, Chicago, 1893; aged 52; died, October 1, from heart disease.

Charles Henry Scott, M.D. Eclectic Medical Institute, Cincinnati, 1897; aged 48; of Rupert, Ida.; died in that place, July 17, from the effects of injuries received in a collision between his automobile and a railway train.

Claude Earl Bucher, M.D. Northwestern University Medical School, Chicago, 1912; aged 32; of Williamsville, Ill.; was killed October 5 by the overturning of his automobile while responding to a professional call.

Pearl Tinkler, M.D. Barnes Medical College, St. Louis, 1911; aged 26; of Taylorville, Ill.; formerly a Fellow of the American Medical Association; died in the Baptist Hospital, St. Louis, August 9, from septicemia.

Robert P. Sorrells, M.D. Medical College of Georgia, Augusta, 1875; about 60 years of age; a practitioner and druggist of Clarke County, Ga.; died suddenly at his home in Danielsville, Ga., September 24.

M. M. Welsh, M.D. Keokuk, Iowa, Medical College, 1896; aged 52; a member of the Illinois State Medical Society; died at his home in Odell, Ill., September 28, from pneumonia complicating typhoid fever.

Alphonse Joseph Pierre Garneau, M.D. Laval University, Quebec, 1893; aged 48; for more than twenty years a practitioner of Fall River, Mass.; died at his home in that city, September 20, from heart disease.

Herman Delmar Hunt, M.D. Syracuse, N. Y., University, 1874; aged 68; for nineteen years supervisor and for four years postmaster of Preble, N. Y., died at his home in Preble, July 30, from angina pectoris.

David Benjamin Crediford, M.D. Medical School of Maine, Brunswick, 1892; aged 51; a Fellow of the American Medical Association; died at his home in Rialto, Calif., July 18, from angina pectoris.

Orson Pope Kingsley, M.D. Baltimore Medical College, 1907; aged 36; of Brush, Colo.; a veteran of the Spanish-American war, with service in the Philippines; died in a hospital in Denver, September 23.

Willis T. Honsinger, M.D. University of Vermont, Burlington, 1874; formerly a member of the General Assembly from Clinton County, N. Y.; died at his home in West Chazy, N. Y., September 21.

Gideon Hill Morgan, M.D. University of Tennessee, Nashville, 1881; aged 63; died at his home in Fountain City, Tenn., September 29, from tetanus due to a nail wound of the foot ten days before.

Ithamar Davisson, M.D. Baltimore Medical College, 1893; College of Physicians and Surgeons, Baltimore, 1910; aged 60; died at his home in Flemington, W. Va., July 4, from cerebral hemorrhage.

Nicholas Gibbon Moore, M.D. Jefferson Medical College, 1891; aged 48; of Mooresville, N. C.; died at a hospital in Statesville, N. C., September 19, after an operation for disease of the intestine.

James Bates McKinley, M.D. Starling Medical College, Columbus, Ohio, 1891; aged 49; of Harrisburg, Ohio; died at the home of his sister in Columbus, Ohio, September 17, from heart disease.

Elijah A. Shippey, M.D. University of Louisville, Ky., 1854; aged 82; a Confederate veteran; one of the oldest residents of Hot Springs, Ark.; died at his home in that city, September 22.

John S. Mitchell, M.D. University of Pennsylvania, 1852; aged 87; for sixty-five years a practitioner of Bedford County, Va.; died at the home of his daughter near Bedford, Va., September 8.

Marcus Foster Clemmons, M.D. Vanderbilt University, Nashville, Tenn., 1887; of the Baird's Mill neighborhood, near Lebanon, Tenn.; died at his home September 22, from typhoid fever.

John B. Kennedy, M.D. Vanderbilt University, Nashville, Tenn., 1870; aged 70; formerly of Goldsboro, N. C.; a Confederate veteran; died at his home in Grantham, N. C., September 28.

Frank D. Vreeland, M.D. New York Homeopathic Medical College, 1879; aged 64; of Paterson, N. J.; died at the home of his son in Passaic, N. J., October 4, from cerebral hemorrhage.

Hayes B. Jones (license, Iowa, Jan. 10, 1891); aged 69; of Des Moines, Iowa; a veteran of the Civil War; died in the Methodist Hospital, Des Moines, September 18, from pneumonia.

John Hunter Pope, M.D. University of Virginia, Charlottesville, 1868; a Confederate veteran; for many years a practitioner of Marshall, Texas; died in that city about September 20.

Joseph Francis O'Malley, M.D. Rush Medical College, 1892; aged 47; of Ewen, Mich.; died in St. Mary's Hospital, Marquette, Mich., September 19, from carcinoma of the stomach.

Amelia E. Burroughs, M.D. Homeopathic Hospital College, Cleveland, 1881; physician to the Burroughs Place Dispensary, Boston; died at her home in that city, September 25.

Edmund Beckwith, M.D. Homeopathic Hospital College, Cleveland, 1865; aged 78; a pioneer practitioner of Petaluma, Calif.; died in Talmadge, Calif., about September 21.

Charles Isaac Eberle, M.D. University of Michigan, Ann Arbor, 1879; aged 61; of Blairsburg, Ia.; died in Mercy Hospital, Webster City, Ia., September 20, from heart disease.

Thomas Street Norwood, M.D. Tulane University, New Orleans, 1906; aged 34; a Fellow of the American Medical Association; died recently at his home in Norwood, Pa.

Stephen H. Carroll, M.D. New York Homeopathic Medical College, New York City, 1870; aged 73; died at his home in Albany, September 22, from disease of the liver.

George Clarendon Clarke, M.D. New York University, New York City, 1877; aged 65; died at his home in East Douglass, Mass., August 7, from angina pectoris.

Oliver S. Trimmer, M.D. Cleveland University of Medicine and Surgery, 1864; aged 81; died at his home in Pacific Grove, Calif., July 5, from valvular heart disease.

Albert Maldonado, M.D. Bellevue Hospital Medical College, 1887; of San Francisco; died in Lane Hospital in that city, September 15, from atrophy of the liver.

Alfred O. Pitcher, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1867; aged 72; died at his home in Mt. Pleasant, Iowa, September 18.

S. S. Stacy (license, Arkansas, 1903), aged 89; a practitioner since 1868; died at his home in Willcockson, Ark., July 27, from chronic diarrhea.

John Schnee Thompson, M.D. Rush Medical College, 1873; aged 68; died at his home in Palestine, Ill., July 12, from hemorrhage of the stomach.

Charles B. Roberts, M.D. Ensworth Medical College, St. Joseph, Mo., 1890; died at his home in Towanda, Ill., September 21, from heart disease.

Joseph R. Cox, M.D. Cleveland University of Medicine and Surgery, 1896; aged 44; died at his home in New Castle, Pa., August 21, from paresis.

C. J. Hill Chipman, M.D. McGill University, Montreal, 1868; of Port Arthur, Ont.; died in Ottawa, Ont., July 9, from cerebral hemorrhage.

Duncan MacFarlan, M.D. Hahnemann Medical College, Philadelphia, 1875; aged 63; died at his home in Philadelphia, September 26.

Charles C. Taggart, M.D. University of Maryland, Baltimore, 1887; aged 49; died at his home in Marshfield, Ore., September 11.

F. W. Max Klonk, M.D. Baltimore Medical College, 1894; aged 63; died at his home in Oakland, Calif., October 2.

John B. Foster (license, Mississippi, 1880), aged 76; died at his home in Vimville, Miss., September 22

S. D. Bliss (license, Missouri, 1885), aged 89; of Aurora Springs, Mo.; died in Higginsville, Mo., August 13, from carcinoma of the stomach.

Ephraim A. Santee, M.D. Jefferson Medical College, 1869; aged 77; died at his home in Wapwallopen, Pa., September 16, from senile debility.

C. E. Cox (license, Indiana, 1898), aged 73; died at his home in Cannelton, Ind., August 13, from chronic parenchymatous nephritis.

William H. McDowell (license, Kansas, 1901), aged 71; died at his home in Iola, Kan., August 1, from cerebral hemorrhage.

Charles D. Ware, M.D. Medical College of Ohio, Cincinnati, 1888; died at his home in Bodie, Calif., September 18.

W. F. A. Edney (license, Arkansas, 1903), aged 65; died at his home in Abbot, Ark., July 7, from cerebral hemorrhage.

Emmet E. Whitaker (license, Arkansas, 1903), aged 44; died at his home in Riddle, Ark., July 21, from hemiplegia.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME MISCELLANEOUS NOSTRUMS FOR EXTERNAL APPLICATION

AMAROL

Amarol is a so-called "complexion beautifier" advertised under the "prescription fakes" method. It has been exposed by various state health boards. According to the bulletin on "Medical Frauds" issued by the Indiana State Board of Health the stuff is put on the market by the F. W. Scharff Co., Chicago, and has the following composition:

Little Home Aids on How to Be Beautiful

BY MADAME MAREE

Questions on Beauty topics will be answered by mail when stamped envelope is enclosed.

For a Lovely Complexion

Many complexions are ruined with cheap soaps and harmful face powders, which clog the pores, produce blackheads, pimply conditions and coarsen the skin. I often recommend cerol for massaging, as it cleans and clears the skin, acts as a food to the delicate tissues, and does not grow hair. You can prepare this cream in your own home, at little cost, by dissolving three ounces of cerol in a pint of water which has been brought to a boil, stirring well until of a thick consistency. Any druggist can supply cerol, and you will find it the smoothest and most delightful cream you ever used.

Answers to Queries.

Myra: That unnatural hairy growth is easily removed with powdered delol. Get an ounce from the druggist, and mix a little with enough water to form a stiff paste, then spread thickly on hairy parts and in three minutes scrape off and the hairs are gone.

Loclio: The best Lister solution is made with powdered boro lister, and is especially good for sore or itching feet, or burns or wounds of any kind. To prepare, get an ounce of pure boro lister powder from your druggist and dissolve in a pint and a half of boiling water; when cool add eight ounces of alcohol. This is an antiseptic found in nearly every home and is splendid as a tooth wash or for catarrhal conditions.

Ida: Harsh winds often make the skin red and ugly, and I find an amarol solution is the simplest and ... of all. To prepare, get two ounces of amarol from your druggist, then dissolve in a pint of hot water and it is ready. Liberal applications after washing and drying the face and hands soon make the skin soft and pink, giving it a satiny glow.

Elsie: Artificial helps are easily detected, but if you use the Vaucaire treatment, which feeds the starved and shrunken tissues and builds up from the inside, you will soon have a pretty figure. To prepare this treatment, make a syrup with a cup and a half of sugar and water to make a pint and stir in an ounce of callol (true) which you get at the drug store, then take one tablespoonful twice a day. This is the original and famous Vaucaire treatment so popular among French women.

Reader: Your friend is right. Unless immediate attention is given to your hair you may find even a switch insufficient. Shampooing twice a month for a while with egged and using beta-cantrol, as a tonic greatly stimulates the scalp and hair follicles and soon produces a luxuriant growth of long, glossy hair. Any druggist can supply these ingredients at a small cost, and to make the tonic, pour a half pint of alcohol in a half pint of water, then add an ounce of beta-cantrol. Apply every night for a month, then once a week.

An advertisement in the form of an Answers to Correspondents department. Each "answer" recommends a "patent medicine" put out by the Scharff-Cooper concern: "Amarol," "Cerol," "Delol," etc.

Epsom salt	95 per cent.
Borax	5 per cent.

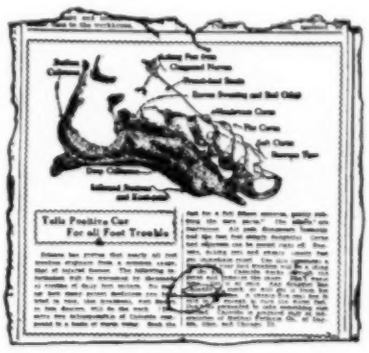
The estimated value of the ingredients is 1 cent but it sells for one-half dollar. According to the advertising, Amarol will "make the skin soft and pink, giving it a satiny glow." The F. W. Scharff Co. operates from the same offices as the Cooper Pharmacal Co., "Valeska Suratt," etc.

ANTI-FRECKLE LOTION

This product, according to the Indiana State Board of Health, is put on the market by E. B. Gustin, Logansport, Ind. The Indiana chemists reported that it had essentially the following composition:

Bichlorid of mercury	1.5 per cent.
Alcohol	2 per cent.
Water	96.5 per cent.

According to the same authority the stuff retails for 50 cents, while the estimated value of the ingredients is 1 cent.



Tells Positive Cur For all Foot Trouble

A typical advertisement of "Calocide."

CALOCIDE

Advertisements of Calocide have described it as a "positive cure for all foot trouble." According to one advertisement, when Calocide is used:

"All pain disappears instantly and the feet feel simply delightful. Corns and callouses can be peeled right off. Bunions, aching feet and sweaty, smelling feet get immediate relief."

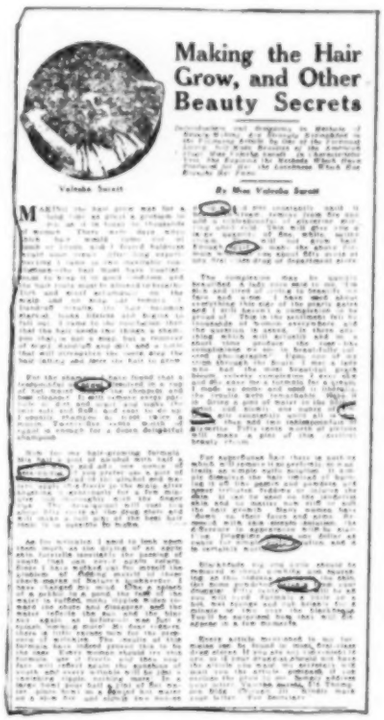
This marvelous compound, which is also recommended for "frost bites, chilblain, burning, aching tender feet" is put on the market by the Medical Formula Laboratories of Dayton, Ohio, and Chicago. Various chemists have analyzed this preparation and their reports agree in essentials. The following are results reported by the state chemists of Connecticut:

Common salt, about	22.44 per cent.
Borax, about	37.58 per cent.
Alum, about	39.35 per cent.
Tannin	Small amount

Dr. Harvey W. Wiley, who has also analyzed the preparation, states in the book "1001 Tests" that Calocide "might be very drawing and drying to the feet, undesirably so under some conditions."

CEROL

Cerol is another preparation sold on the "prescription fake" method and marketed by the Scharff-Cooper concern, that puts out Amarol, etc. According to an advertisement published in the form of an "Answers to Correspondents" department entitled "Little Home Aids on How to be Beautiful by Madame Maree" Cerol "cleans and clears the skin" and also "acts as a food to the delicate tissues." Various reports from boards of health assign to Cerol the following composition:



Making the Hair Grow, and Other Beauty Secrets

By Miss Valeska Suratt

"Valeska Suratt, Thompson Bldg., Chicago," is a name used by the Cooper Pharmacal Co. in exploiting its nostrums, "Eptol," "Eggol," etc.

Boric acid	Stearic acid	Perfume

CLEAROLA

Clearola is said to be put on the market by G. W. Carpenter, Jaffrey, N. H. It is sold as a preparation which will "whiten the skin" and has been reported on by the state chemists of Indiana, Ohio and Kansas. They all agree in declaring that Clearola is nothing more mysterious than ordinary sulphur.

CUTICLE ACID

This product, put on the market, apparently, by Richard Hudnut of New York is said to "remove dead skin." According to the Kansas State Board of Health Bulletin for August, 1914, Cuticle Acid is mostly water with:

Alcohol	10 per cent.
Oxalic acid	2 per cent.

DERMA-ROYALE

Derma-Royale emanates from the Derma-Royale Co. of Cincinnati. Some years ago it was advertised under such claims as:

"Cures Eczema and Tetter."

"Absolutely and permanently removes Blackheads, Freckles, Pimples, Redness, Sun spots and Tan."

The present claims, while not so definite, are no more modest. According to the state chemists of Connecticut, as given in their report for 1914: "This preparation is a dilute alcohol-glycerin solution with small amounts of camphor, myrrh, benzoin and possibly other aromatics in suspension."

EPTOL

"There is little excuse now for the presence of wrinkles. The results of this formula have indeed proved this to be the case. Every woman should try this formula, use it freely and then your face will reflect against the sunshine of youth and every wrinkle will be just a vanishing ripple, nothing more!" Thus, to the gullible, appeals the Cooper Pharmacal Company of Chicago in a fake "Beauty Secrets" department published under the name of "Miss Valeska Suratt." The "formula" referred to is Eptol, plus some glycerin and water. Eptol is a white powder perfumed with rose which sells for 50 cents for a 1½-ounce box. According to the state chemists of Connecticut, Eptol has essentially the following composition:

Borax	37 per cent.
Soap and stearic acid	63 per cent.

FATOFF

Fatoff is supposed to be the "discovery" of one Mary S. Borden and is put on the market by the M. S. Borden Co. of New York City. According to a booklet put out by the concern, "Fatoff has been granted a patent." We find from the patent records that Mary S. Borden of New York City was granted a patent on what she termed a "toilet cream." The patent specifications give the following composition of this product:

Water	14 lbs.
Washing soap	6 oz.
Extract of bladder-wrack	1 oz.
Washing soda	1 oz.
Potassium carbonate	135 grains
Thyroid gland of sheep	30 oz.
Tincture of iodin	¼ oz.
Perfume	½ oz.

The patent specifications do not give any indication that the preparation is to be used for the reduction of weight; in fact Mary S. Borden states specifically:

"The object of my invention is to provide or produce a new and useful composition, which, when applied to the skin, will protect the covered part from the air and at the same time operate as a cleanser or purifier for the removal of foreign matters or accumulations."

"FATOFF"
The M. S. Borden Corpulency Reducer for Men and Women is selling from Sea to Sea and BEYOND the Seas!
We never had a salesman sell a jar—It sells itself—one friend recommending it to another
No Oils, No Grease, No Odor, No Dieting, No Exercise, No Medicine.
The discriminating FATOFF considers herself one of Uncle Sam's "assets" as a producer of something worth while—"FATOFF," a product of Real commercial value at home and for export—and it's HONEST!
YOU need it NOW if you're corpulent—take a FATOFF treatment to-night and if you don't do enough extra business to-morrow to more than make up the Cost you will be the first one.
Don't have cold feet—rub them with FATOFF and get new life into 'em! Send for book.
FATOFF is a pleasant EXTERNAL treatment that's given new life and the buoyancy of youth to thousands; reduces waist line, excess fat at back of neck, and all OTHER corpulent parts in an INCREDIBLY short time. You can treat yourself at home; you MAY use it in hot bath.
Appointments made for expert treatment at your home. Send for convincing literature, mailed free in plain sealed wrapper.
FATOFF FOR DOUBLE CHIN (a chin reducing wonder).
Special Size, $1.50
FATOFF (Full Size) $2.50
At leading druggists throughout the country or
M. S. BORDEN COMPANY
NEW YORK CITY

Elsewhere in the patent specifications, however, Mrs. Borden speaks of the use of her toilet cream "to secure *other* and *further* useful results." [Italics ours.—ED.] Naturally, there would be no object in using bladder-wrack, thyroid, tincture of iodin, etc., in an ordinary toilet cream sold for cleansing and protective purposes only. All of these drugs, however, are more or less common ingredients in so-called "obesity cures." Some time ago the government published a report in which the federal chemists had the following to say about M. S. Borden's "Fatoff":

"Analysis shows that the product is a paste made of soap and water containing 10 per cent. soap and 90 per cent. water."

The Indiana State Board of Health in its bulletin on "Medical Frauds," issued in 1914, states that Fatoff is essentially "soft-soap." It declares further, that while the selling price of this preparation is $1.50 the value of the ingredients is 5 cents. From the facts submitted it would seem that, while originally Fatoff may have contained such drugs as thyroid, bladder-wrack, iodin, etc., it no longer has these drugs in it. Why should it? It is just as easy to fool the obese with a soft-soap mixture sold under a fancy name at a fancy price as it is to humbug them with a more elaborate product—and the profits are greater!

GLORIOL BALM

This is one of a large group of nostrums put on the market by the Blackburn Products Company, a concern run by two men, one of whom is said to have been in the advertising business and the other in the cigar trade. The Prescription Products Company and the Lesslie Company are two other names under which the same men do business. Gloriol Balm is apparently put out under the name of the Lesslie Company. The advertising is done largely by the "prescription fake" method, usually under the title "The Doctor's Advice by Dr. Lewis Baker" although sometimes by means of an "Answers to Correspondents" department entitled "How to be Beautiful, Secrets of Health and Beauty by Claire Ainsworth." Gloriol Balm is a toilet cream of the "vanishing" type. It is said to "make the skin smooth and clean." It is found listed among medical frauds in the bulletin on this subject issued by the Indiana State Board of Health. According to the Indiana chemists it has the following composition:

ADVERTISEMENT ADVERTISEMENT ADVERTISEMENT

How to be Beautiful
Secrets of Health and Beauty
by Claire Ainsworth

Another fake Answers to Correspondents department. The "answers" here recommend "patent medicines" or toilet articles put out by the Blackburn Products Co., of Dayton, Ohio, or of one of its subsidiary concerns.

Stearic acid, soap and borax	23.7 per cent.
Water	76.3 per cent.

GLORIOL GLOWENE

This preparation is put out by the same concern as Gloriol Balm and is advertised by the same methods. According to one advertisement appearing in a fake "Answers to Correspondents" department:

"Soap is a destroyer of a beautiful skin and I want all my fair readers to discontinue its use. Instead use Gloriol Glowene which is really a water massage. . . ."

According to the state chemists of Indiana, of Kansas and of Michigan, "Gloriol Glowene" is soft soap!

ZEMO

Zemo (E. W. Rose Medicine Company, St. Louis, Mo.) is sold as "A Preparation for the Treatment of Eczema, Pimples, Dandruff and Similar Affections of the Skin and Scalp." While, in accordance with the requirements of the Food and Drugs Act, the manufacturer admits the presence of 35 per cent. alcohol in his product he gives no further information regarding its composition. Some of the claims that have been made for this preparation, through the medium of those newspapers that are willing to cater to this sort of business, are:

"There is nothing known that will stop itching like Zemo."
"You simply apply it on the afflicted part . . . all eczema sores and pains, prickly heat, rash, tetter, inflamed or reddened skin, all disappear."
"It also cures dandruff, which is scalp eczema."
"Every form of Scalp Disease Cured Quick by Zemo."

As is the case with many of the "patent medicines" sold for external application, Zemo is used as a "come-on" for the purchase of another nostrum put out by the same company: "If your case does not readily yield to Zemo use Zemotone, which is primarily a blood tonic and purifier. . . ." Then there are "Zemo Laxative Pepsin Tablets" and "Zemo Soap." The purchaser is told, too, that "if after using Zemo freely the trouble appears worse it indicates that Zemo is drawing out the germ life."

A specimen of Zemo was purchased on the open market and turned over to the Association's laboratory for analysis. An abstract of the chemists' report follows:

One original bottle of Zemo, manufactured by the E. W. Rose Medicine Co., St. Louis, was submitted to the Chemical Laboratory for examination. The bottle contained a brown fluorescent liquid, acid to litmus. The amount of alcohol was 28.35 per cent. absolute alcohol by volume. Alkaloids, heavy metals and iodids were not found. From the result of the tests made, it would appear that Zemo is a watery-alcoholic solution containing methylsalicylate, thymol, borax, tannic acid, glycerine, menthol and a phenol-like body.

With the veil of secrecy torn aside by the chemists, Zemo stands exposed as a very ordinary mixture sold under misleading and fraudulent claims.

THE PROPRIETARY EVIL FROM A LAY VIEWPOINT

The New York Sun Warns the Public to Shun the Proprietary-Prescribing Physician

In an address delivered before the alumni of the College of Physicians and Surgeons by Prof. Francis Carter Wood, as reported in the *Sun*, the doctor points out that the love of the mysterious is the chief element in the popularity of quack remedies, ranging from the scorched cat's whiskers to the "latest synthetic drugs from Germany." The doctor made facetious reference to the confidence in the new-fangled remedies, without, however, solemnly warning against their use. Derivatives mostly from coal tar and chiefly composed of antipyrin, antifebrin combinations are the most vicious form of empiricism. But the young graduate prescribes them because some young, doubtless well-paid docent has written a certificate to testify to their curative value, because, forsooth, he has tried them on animals, a kind of experimentation to which the student is accustomed to look for enlightenment.

The *Sun* has endeavored to impress on its readers the fallacy, if not the danger, of accepting prescriptions from doctors who, too indolent or unscientific to think out their own prescriptions, write for "Kill or Kurem's" Hydrated Phosphate Compound, or C., D. & X. Company's "Diostenin," or "Professor Chadelle's Cresolated Compound," the composition of which they either do not know at all or accept from the manufacturers. The chief aim of the latter naturally is to popularize these preparations by leaving samples at the doctor's office or offering them in generous quantities for the mere cost of a postal card. This injustice and danger to the lay patient will never be removed, because the medical journals with but a very small exception advertise these preparations, the value and uses of which the manufacturers, with the most brazen effrontery, offer to teach the doctor who will listen.

In looking over the advertising pages of one of the most respectable medical journals, to which our best physicians do not hesitate to contribute, we find in its last issue not less than eighteen proprietary medicines, mostly native, which Dr. Wood did not mention.

As we have repeatedly urged, it rests with the general public to protect itself against lazy or indifferent doctors and their dangerous empiricism by examining their prescriptions and refusing to use any that are written for a medicine that bears the name of the manufacturers or is purchasable in original packages. If in doubt, any one may, by copying the name of the article suspected, ascertain from the druggist before showing the prescription if the medicine prescribed may be bought "by the bottle." Lest this method be regarded as unwarranted, let it be considered that we trust the doctor because we know him and that this trust is misplaced if he prescribes a drug the composition of which he does not know.

Another point suggested by this address is the fact that when Professor Wood said that "the remedy for the love of the mysterious is education," and when he praised the campaign being inaugurated by physicians through bulletins of medical societies and public health officers, "which will abate somewhat the density of popular ignorance," he lost sight of the far more potent influence of those newspapers which devote space to approving comments on these publications and print original articles on the subject, as has been done for many years by the *Sun*, that would never otherwise reach the public.—Editorial, New York *Sun*, Oct. 7, 1915.

Correspondence

American Salvarsan

To the Editor:—It may interest you to know that, in the course of chemotherapeutic researches which Dr. Raiziss, Dr. Kolmer and myself have carried out in the Dermatological Research Department of the Philadelphia Polyclinic during the past year or more, we have reproduced salvarsan and have made a number of new arseno-benzol products. We have given over 100 injections of our salvarsan to hospital patients with excellent therapeutic results and with no untoward effects.

I understand that the supply of salvarsan in this country is exhausted and that the American agents do not know when the drug can be imported from Germany. The American patents are held in the name of Ehrlich and Bertheim, but have doubtless been consigned to the manufacturing company of Lucius and Brüning of Frankfort, Germany.

As salvarsan is necessary to save life as well as to prevent the spread of syphilis, it is eminently desirable that this country should not be deprived of the drug. We could not supply salvarsan to the medical profession at the present time without infringing the existing patent rights of the Frankfort company. To have the patent laws amended would doubtless require congressional action. Should we be permitted to supply the drug to the profession, I think we could offer it at one third of the price which it has recently commanded. All profits accruing therefrom would be devoted to the establishment of a permanent fund for further scientific research.

If you think it desirable to bring this matter to the attention of the Board of Trustees of the American Medical Association, I shall be glad to furnish you with any further information that you might desire.

J. F. SCHAMBERG, M.D., Philadelphia.

[NOTE.—Bearing on the subject-matter of Dr. Schamberg's letter are the following resolutions, which were unanimously adopted by the House of Delegates of the Medical Society

of the State of Pennsylvania in session in Philadelphia, Sept. 22, 1915:

Whereas, An important drug, necessary for the cure of disease and likewise the prevention thereof, is no longer available to the medical profession of this country by reason of the European war, and

Whereas, This drug has been produced in this country, but cannot be supplied to physicians because its manufacturer is protected by patents, therefore, be it

RESOLVED, By the Medical Society of the State of Pennsylvania that the Secretary of the Interior or the Commissioner of Patents be respectfully urged to call upon the patentees to supply this drug or permit the same to be supplied by others, or to take such other means as his judgment may dictate to relieve the existing condition.

—ED.]

Sixteenth Century Medical Poets

To the Editor:—The following stanzas by Dr. John Halle, written in 1564, were given me by Dr. George Dock of St. Louis in 1905. To the best of my recollection, Dr. Dock found them while browsing about among the old book shops of London, during the preceding summer. The verses contain much good advice applicable to medical practice today.

I have been unable to trace the history of John Halle. His name is not mentioned in the "Biographical Memoirs of the Most Celebrated Physicians and Surgeons" by Pettigrew, published in London about 1840. I have understood that he was the Dr. John Halle who married the eldest daughter of William Shakespeare. She was born in 1583. The verses were written in 1564, nineteen years before her birth, which would throw some doubt, although it would not contradict, this historical statement. As a commentary on gentlemanly conduct and medical ethics of the sixteenth century, I trust the verses will prove interesting to your readers.

WILLARD J. STONE, M.D., Toledo, Ohio.

GOODLYE DOCTRINE AND INSTRUCTION

By John Halle, 1564

When thou arte callde at anye time,
A patient to see;
And doste perceave the cure to grate,
And ponderous for thee:

See that thou laye disdeyne aside,
And pride of thyne owne skyll:
And thinke no shame counsell to take,
But rather wyth good wyll.

Gette one or two of experte men,
To helpe thee in that nede;
And make them partakers wyth thee,
In that worke to procede.

For in so doinge, thine honestye
Thou shalte well kepe and save;
Also thy patiente thereby
Right greate comforte shall have.

By thys meanes thou mayste haplye learne,
Ryghte seldome sene before;
Of thee, or hym, whych fyrste thee taughte,
Though thou have cunnynge store.

And also if oughte goe a wrye,
Or hinder in thy cure,
The one maye mende the others faulte,
While friendship dothe endure.

The wounded or sore man also,
Shall have no cause to grudge
In you suche uniformitye,
Whyle he maye see and judge.

But one thinge note, when two or moe
Together joyned be;
Aboute the paynfull patient,
See that ye doe agree.

See that no discorde doe arise,
Nor be at no debate;
For that shall sore discomforte hym,
That is in sycke estate.

For noughte can more discomforte him,
That lies in griefe and peyne,
Then heare that one of you dothe beare
To other suche disdeine.

Wherefore what so ye have to saye,
In thinges about your arte;
Let it be done among yourselves,
In secrete and a parte.

With one consent uniformlye
Comforte the wounded man;
But unto some good frende of hys
Express all that ye can.

See thou dispraise none other man
His error though thou knowe;
For sure an other for thy plage,
Shall then like curtyse showe.

[COMMENT.—Dr. Stone seems to have somewhat confused Dr. John Halle with Dr. John Hall.

John Hall, who was born in 1575 and died in 1635, married Susanna Shakespeare, June 5, 1607. He is reported to have been a medical man of more than the average knowledge and ability, and was deservedly held in high esteem. Dr. Hall could not have been the author of the poem printed above if it was written in 1564. He was, however, the author of a book of which the following description occurs in the Surgeon-General's Index:

Select observations on English bodies; or, cures, both empericall and historicall, performed upon very eminent persons in desperate diseases. First written in Latine by . . . living at Stratford upon Avon in Warwick-shire, where he was very famous, as also in the counties adjacent, as appeares by these observations drawn out of severall hundreds of his, as choysest. Now put into English for common benefit by James Cooke.

Dr. John Halle was borne in 1529. His biography is published in J. Aikin's "Biographical Memoirs," London, 1780, p. 181. In a series of articles on Archaeologia Anatomica by E. Barclay-Smith, published in the *Journal of Anatomy and Physiology*, 1900, xxxiv, 275, his work is especially discussed. He is the author of a book thus described in the Surgeon-General's catalogue.

An historicall espostulation against the beastlye abusers, both of chyrurgerie and physyke, in oure tyme: with a goodlye doctrine and instruction, necessarye to be marked and followed of all true chirurgiens.

It is probable that the poem printed above is a portion of this work. Barclay-Smith states that:

The "Compendious work of Anatomie, more utile and profitable than any heretofore in the Englyshe tongue publyshed," annexed to Mr. John Halle's "A most excellent and learned woorke of Chirurgerie," is perhaps the earliest anatomical treatise written by an Englishman, and published in England, now existent, but Halle is far from being the earliest English anatomical writer of whom we have record.

So far as can be determined, the first edition of his work has disappeared completely.

Barclay-Smith states that Halle, like many writers of his age, was bitten with an inexpressible desire to sing. He bursts into poetry on the slightest provocation. The following poem is quoted:

But chieflye the Anatomye
Ye oughte to understande:
If ye will cure well anye thinge,
That ye doe take in hande.

For by the same above the reft,
Ye shall greate fame deserve,
The life of many from manye streightes,
To save and well preserve.

Without the knowledge of whyche arte,
Thou canste not chose but erre:
In all that thou shalte goe aboute
Thy knowledge to preferre:

As if ye cutte or cauterize,
Or use Phlebotomye:
Ye can not but erre in the same,
Without Anatomye.

He is no true Chirurgien
That cannot shewe by arte,
The nature of eurye member,
Eche from other aparte.

For in that noble handye worke,
There dothe nothinge excell,
The knowledge of Anatomye,
If it be learned well.

Endeoure therefore by all meanes,
The same to knowe and cunne,
For when thou haste it perfectlye,
Thine arte is halflye wunne.

For thereby shalt thou understande,
Of eche member in dede,
Their nature and their offices,
And howe they doe procede.

And unto what good use they serve,
As well the leaste as moste,
And by their hurte Prognosticate,
What action will be loste.

Whereby of knowledge and greate skill,
Thou shalt obteine the brute,
And men to thee in generall,
For helpe shall make their sute.

Wherfore all honour, laude and praise,
To God ascribed be,
The Father, Sonne, and holye Ghoste,
One God and personnes three.

—ED.]

The Fate of Bone Transplants

To the Editor:—We have received a letter from Dr. C. A. McWilliams of New York, complaining that our Conclusion 2 on experimental bone work (THE JOURNAL, September 18) was unfair, in that it implied that because of lack of sufficient contact and immobilization, his wounds *suppurated*.

We hasten to correct this impression, as if this interpretation were put on the conclusion it would be manifestly unfair to Dr. McWilliams.

Exactly what we meant was that there was not sufficient contact and immobilization in his dog experiments, and not sufficient contact in his three clinical cases to secure primary union between the transplant and parent bone.

So far as other criticisms of the article by Dr. McWilliams are concerned, they pertain to the scientific value of the contribution, and will be answered at another time if need be.

We hope that the foregoing explanation will make the conclusion plain. W. L. and C. P. BROWN, El Paso, Texas.

[The foregoing letter was referred to Dr. McWilliams who replied:]

To the Editor:—The original article by Brown and Brown is loosely put together, for most authorities consider "free" grafts to be nonpedicled grafts in contradistinction to pedicled grafts (either temporary or permanent). Brown and Brown evidently use the term "free grafts" to mean *noncontacting grafts*, but without any explanation of this fact, as one has to go through the article to learn what is meant. The authors have explained in the preceding letter their use of the term "primary union" in Conclusion 2. Universal application of the term "primary union" makes

these words refer to the absence of infection. Brown and Brown have found a new use for these words.

As for the criticism of the lack of sufficient contact and immobilization in my animal and clinical cases to secure "primary union" between the transplant and the parent bone, if we grant, for the sake of argument, that these were insufficient, then these grafts died because of the lack of periosteum, for they evidently had not sufficient life in themselves to live and they could not get nourishment from the lack of contacting points. If, on the other hand, periosteum had been on these grafts, they would all have lived despite the pretended lack of contact and immobilization for there are almost no reported failures of transplants made *with* periosteum. Grafts *with* periosteum have been proved by many to be living entities in themselves and do not need contact with living bone to maintain their own life, e. g., Gill (*Ann. Surg.*, June, 1915) has proved that neither contact nor immobilization is absolutely necessary for the life of the grafts, if periosteum be on them, for he transplanted the entire metatarsal bone with periosteum from one leg of a dog to the other leg. There was no bony contact and no immobilization in any one of the cases, yet five transplants lived perfectly for eight months after the transplantations despite suppuration in all but one case. These transplants are all perfectly normal in appearance. Barth was the originator of the theory that contact is necessary for the life of grafts, but in 1908 he entirely repudiated his original ideas and came to believe that periosteum was the necessary element in their life. Murphy is the sole defender of the contact idea, now backed up by Brown and Brown, but Murphy has never advanced any proofs to support the theory. Whether Brown and Brown have done so is left to the judgment of the profession. In addition there are numerous human transplantations of metatarsals and phalanges of the foot into the metacarpals and phalanges of the hand, which have succeeded perfectly without any bony contact being made. These cases absolutely invalidate the contact theory.

C. A. McWILLIAMS, M.D., New York.

The Relation of Selective Tissue Affinity to Infection

To the Editor:—Your recent editorial on this subject (THE JOURNAL, Sept. 25, 1915, p. 1114) would seem to open up the path for important clinical progress. If a pneumococcus which has an affinity for the lungs is grown on artificial mediums, it loses this specificity and is apt to locate in other tissues. It has really become another strain. This selective affinity may be assumed to be due to the fact that the toxins of the particular organism in question are especially toxic to this tissue, and having lowered its resistance, grow there with greater freedom, or that certain tissues themselves do not resist the invasion of these strains, or both.

It would seem that a vaccine produced on artificial mediums would be from necessity another strain, and even though it be an autogenous vaccine, its characteristics would probably differ somewhat. By the use of vaccines prepared from cultures grown on mediums containing homologous tissue extracts, the specificity of the culture would be maintained and a greater number of antibodies produced. For instance, a pneumococcus vaccine intended for use in pneumonia could be prepared from cultures grown on mediums containing extracts of lung tissue. A vaccine to be used in pyelitis could be prepared from culture mediums containing an extract of kidney tissue. This would raise the resistance of the particular tissue involved and produce a vaccine with the same characteristics as that of the invading organism. This theory would naturally have its limitations, but in certain fields would open a new door in vaccine therapeusis.

E. L. WARD, M.D., Santa Fe, N. M.

Progress.—The drama of progress, whether displayed in the evolution of living things or in man's age-long struggle to comprehend the world of which he is a product, stirs the imagination by a warmer appeal. Without it we should miss something that we fain would keep.—E. B. Wilson, *Science*.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

LENGTH OF GESTATION IN ECTOPIC PREGNANCY

To the Editor:—Recently I assisted in an operation for ectopic pregnancy in which the uterus was empty and showed no signs of rupture. The child was alive, fully developed and weighed 9 pounds. The mother claims she was always regular with menstruation and there was never amenorrhea until this, her first pregnancy. She claims further that she has been pregnant fifteen months up to the time of this operation and had felt life for nine months. Can you inform me how many cases are on record in which a child remained alive in ectopic pregnancy longer than nine months? The operation was performed two months ago; mother and child are still doing well.

L. T. H., Idaho.

ANSWER.—It is well known that the duration of pregnancy frequently exceeds 280 days. Of course the exact duration is never known because there is always uncertainty as to the date of the beginning of pregnancy. Even when there is a single coitus the time of fertilization may be delayed, possibly several days. Numerous cases of pregnancy lasting about 302 days are on record and a few cases between 330 and 336 days are accepted as reliable. No credible reports of gestation prolonged more than 349 days are extant.

Such a report as is given by our correspondent can make no claim to credibility. The mother's assertion that she was pregnant fifteen months or that she had felt life nine months means nothing to the reader of the report. Every pertinent part of the personal and family history bearing on the reliability of the patient should be given. The exact dates of menstruation, cohabitation, nausea, symptoms of disturbance from extra-uterine pregnancy, etc., as far as possible should be stated; likewise the exact weight and length of the child, as well as the state of the development of the bones, should be recorded.

While there are numerous reports of cases of abdominal pregnancy with the child living at term, there are very few in which the child lived beyond the usual term of gestation. Uterine contractions generally occur, accompanied by contractions in the extra-uterine fruit sac, and the child dies. Parry ("Ectopic Gestation," 1876) reports a case of twins, one intra-uterine the other extra-uterine, in which the patient felt the movements of the extra-uterine child seven weeks after the birth of the uterine child. He also cites a case from Grassi, who claims to have felt the fetal movements in a case of abdominal pregnancy twenty-three months after cessation of the menses. These reports are good illustrations of interesting medical gossip that have no claim to scientific credence.

The following references may be quoted:

Cushing, E. W.: A Case of Extra-Uterine Pregnancy; Operation at Ninth Month; Recovery, *Am. Gynec. and Pediat.*, 1890-1891, iv, 214.
Dalton, H. C.: Ectopic Pregnancy Operated on at Full Term; Recovery, *Tr. Med. Assn. Missouri*, 1898, xi, 91.
Rafferty, T. M., and Rafferty, H. N.: Operation at Term with Living Child, *Med. Rec.*, New York, 1901, lx, 472.
Root, E. F.: Living Child by Operation at End of Term in Extra-Uterine Gestation, *Am. Surg. and Gynec.*, St. Louis, 1902, xvi, 204.
Urbain, A.: Grossesse extra-uterine à terme; operation; enfant vivant, *Bull. Soc. belge de gynec. et d'obst.*, 1893, iv, 130.
Horsley, J. S.: Abdominal Pregnancy with Living Child, *Surg., Gynec. and Obst.*, July, 1913.
Himmelsbach, W.: Case of Abdominal Pregnancy, *California State Jour. Med.*, December, 1914.
Lewis, D. G.: Abdominal Pregnancy; Eight and One-Half Months' Gestation; Eclampsia; Celiotomy; Recovery of Mother; Child Lived Three Days, *Washington Med. Ann.*, 1907-1908, vi, 315.

FORMATION OF ALCOHOL DURING DIGESTION—ITS OXIDATION BY THE LIVER—EXTENT OF ACIDITY IN HYPERCHLORHYDRIA

To the Editor:—1. Is alcohol formed in the process of digestion?
2. Is it broken up in the liver?
3. In marked cases of hyperchlorhydria does the acid as such continue in the intestines?

H. A. M., Philadelphia.

ANSWER.—1. A trace of ethyl alcohol appears to be present in the ileum and probably also in the large intestine during digestion and absorption. It is commonly held that this alcohol is the product of bacterial fermentation of the carbohydrates of the food rather than due to the action of the digestive ferments of the pancreatic and the intestinal juices. But this point is still unsettled. It is indeed, possible that

the trace of alcohol present in the intestine is excreted from the blood. A trace of ethyl alcohol seems to be present in the blood of normal persons, even when no alcohol is ingested, and when the absorption of alcohol from the digestive tract is excluded. This trace of ethyl alcohol in the blood is, therefore, a product of tissue metabolism. It is well known that alcohol, once in the blood, is eliminated through all the secreting and excreting organs, including the intestinal mucosa.

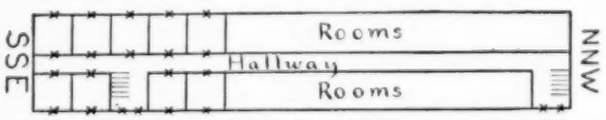
2. There is little or no evidence that the liver oxidizes ethyl alcohol with greater rapidity than do the other organs in the body. It is probable that all the body tissues are capable of oxidizing ethyl alcohol. Experimental work along this line has been concerned with the question whether or not the alcohol is really burnt in the body, and in what way this affects metabolism, rather than with the question as to which particular organ is responsible for the oxidation.

3. In cases of persistent hyperacidity there is hypersecretion. The contents of the duodenum are acid; pylorospasm then occurs, keeping the remaining food in the stomach until sufficient pancreatic juice is secreted to neutralize the acid contents of the duodenum.

VENTILATION

To the Editor:—There is a floor in a school dormitory in this place which approximates this sketch. It is the top floor of a four-story building, and has no overhead ventilation in the hall; therefore all the ventilation is by way of the windows in the rooms and the two staircases. In every instance the window is exactly opposite the door, both being stock size. The rooms are 12 by 12 by 9. There is no method of artificial ventilation in the building, no way of forcing air in or out. The ends of the hall are closed, so that there is no north and south ventilation at all. The building is on a hill to the south of the town, and there are not a dozen residences, and no factories, etc., within a quarter of a mile.

These top floor rooms have been heretofore used for the accommodation of but one pupil, but this year the number of applications exceeds the room-space of the college, and the question of putting two girls to a room on the top floor is being considered. Considered from the standpoint of ventilation, would this be permissible? The average age of the pupils is about 15 or 16.



Sketch of school dormitory; the crosses indicate the location of windows and doors.

Now please don't say that each individual requires 3,000 cubic feet of air an hour and that about 2,500 feet can be passed without perceptible draft through a space of 424 feet, or that in large halls 300 feet per individual is sufficient. I know all that and all the other things about ventilation that do not do me a bit of good. I have to solve a concrete proposition. All girls will not keep their windows open, and in this case it is useless to talk about installing a system of forced ventilation. I know too that on a windy day, if all the windows were opened, you would find it delightful on that floor. The question is, Should I permit them to put two girls in one of those rooms? E. F. Howard, M.D., Vicksburg, Miss.

Answer.—Recent scientific investigation has shown that the bad hygienic effects of an insufficient air supply are more dependent on heat stagnation in the body than on chemical impurity in the air. The easiest and most available method of carrying away the body heat is by means of moving air. Therein lies the chief purpose of ventilation. It is not a question of the quantity of fresh air supplied, but of the quantity of heat that it is capable of carrying away. Hence temperature is also of much importance. If this does not rise above 68 or 69 F., relatively small amounts of air will answer the purpose and no ill effects will be observed. If it goes much above 70, then larger quantities are demanded and some artificial device for maintaining motion becomes necessary.

With these principles in mind we are justified in saying that there should be no objection to placing two girls in a room 12 by 12 by 9 feet and laid out according to the accompanying sketch. The cubic space is quite enough to answer all practical purposes, and the arrangement of doors and windows is such as to make efficient ventilation probable. It is not stated whether the doors are fitted with transoms. It is to be hoped that they are, since such an arrangement will aid materially in the freedom of air movement in and out of the room. As a practical suggestion, it is proposed that the windows of these rooms be supplied with snugly fitting 2-inch boards placed on the sill so that the lower sashes rest on them. This will maintain an open crevice between the upper and lower sashes and secure a ready entrance for air from without. The pupils should be taught that the maintenance of such a crevice may be of value to them.

Recent literature bearing on the principles of ventilation is to be found in the following:

Hill (and others): The Influence of the Atmosphere on Our Health and Comfort in Confined and Crowded Places. Smithsonian Miscellaneous Collections, 1913, Publication 2170.

Lee: Fresh Air, *Pop. Sc. Month.*, April, 1914.

Winslow (and others): Results of the First Year's Work of the New York State Commission on Ventilation, *Am. Jour. Pub. Health*, 1915, v, 85.

Crowder: On the Reinspiration of Expired Air, *Arch. Int. Med.*, October, 1913, p. 420.

TESTS OF PANCREATIC SECRETION

To the Editor:—Please describe the following tests in full:

1. Fulde-Gross stool test of the external secretion of the pancreas.
2. Wohlgemuth's urine test of the external secretion of the pancreas.
3. Volhard's oil gastric test of the external secretion of the pancreas.
4. Loewi pupillary dilatation test.

J. W. Shuman, M.D., Sioux City, Ia.

Answer.—1. The Fulde-Gross trypsin determination method depends on the fact that casein, undigested, is precipitated by acetic acid, while digested casein is not. The estimation is made in units, one unit representing the ability of 1 c.c. stool filtrate to digest 1 c.c. of starch or casein solution.

Fecal solutions of 1:10, 1:100 and 1:1,000 are made and poured into nine test tubes as follows: First three tubes: 1:10 solution, 2, 1 and 0.5 c.c. starch solution 1 per cent., or casein solution 1:1,000. Second three tubes: 1:100 solution, 2, 1 and 0.5 c.c. Third three tubes: 1:1,000 solution, 2, 1 and 0.5 c.c. To each tube are added 5 c.c. of 1 per cent. soluble starch solution or 1:1,000 casein solution. The tube showing digestion, that is, no reaction, by the weakest fecal solution after twenty-four hours' incubation, is taken as the index of digestion. The casein reagent is acetic alcohol (1 per cent. acetic acid may be used); the starch reagent is Lugol's solution.

If a tube containing 1 c.c. of 1:1,000 fecal dilution is the greatest dilution which can digest 5 c.c. starch or casein solution, then 1 c.c. of undiluted fecal filtrate would be able to digest 5,000 c.c. starch or casein solution. This represents 5,000 units. The average normal reading is from 500 to 1,000.

2. Wohlgemuth's method is based on the extraction of a weighed portion of feces with a 1 per cent. sodium chlorid solution and the determination of the amylolytic activity of gradually decreasing volumes of this centrifugated extract, by means of a series of tubes in each of which 5 c.c. of 1 per cent. soluble starch is used as a substrate. After twenty-four hours at 38 C. (100.4 F.) the tubes are treated with a solution of iodin, and the extent of digestion determined colorimetrically. According to Hawk (*Arch. Int. Med.*, October, 1911, p. 553), this method does not yield dependable results when the stools are markedly acid. In his article he gives a modification to overcome this difficulty.

As applied to the urine, this is a test of diastase, 1 c.c. of urine being allowed to act on starch solution. Corbett found that the amount of starch-reducing ferment passed in twenty-four hours is fairly constant, the *d* value or index being 10 to 20 units, each unit representing 1 c.c. of 0.1 per cent. starch solution converted into dextrin in half an hour by 1 c.c. of urine. High readings are found in cases of pancreatic disease, in certain infective conditions and in some forms of eclampsia.

3. Volhard's method is based on the fact that normally there is a slight regurgitation of pancreatic juice into the stomach. The patient receives 1 gm. of magnesium oxid (calcined magnesia), half an hour later 200 c.c. of olive oil or 250 c.c. of sweet cream, and half an hour later again 1 dram of magnesium oxid. The stomach is emptied forty-five minutes later and the Gross method for the examination is carried out. According to Brugsch, the negative findings of trypsin are conclusive only in case erepsin is present.

4. Loewi's test consists of the instillation into the eye of a 1:1,000 epinephrin solution. If dilatation of the pupil takes place within an hour, the test is positive. In cases of pancreatic inefficiency, and occasionally in exophthalmic goiter, the test is positive. Beyond the fact that in these cases there is increased susceptibility of the sympathetic system to stimulation by epinephrin, there is no available explanation of the reaction. It is, of course, necessary to ascertain that the cornea is intact.

SOMNOFORM

To the Editor:—What is the present status of Somnoform as an anesthetic for minor operative procedures and what is its mortality rate in comparison to gas, ether and chloroform? X. Y. Z.

ANSWER.—Somnoform is the proprietary name of a mixture introduced in 1901. It was originally composed of ethyl chlorid, 60 per cent., methyl chlorid, 35 per cent., and ethyl bromid, 5 per cent. It was found that the mixture soon decomposed, which was largely due to the unstable nature of ethyl bromid.

The formula was changed and the mixture is now said to contain but 1 per cent. ethyl bromid. Small doses increase the pulse rate; large doses reduce it. The heart continues to beat after respiration ceases. Small doses increase the rate and depth of respiration. Large doses cause death by respiratory paralysis through overstimulation of the respiratory center, the diaphragm being in a state of tonic contraction. Breathing is usually easily established by artificial means unless the dose be a very large one, which is probably because the heart is so little affected that anemia of the medullary centers does not occur. Like ethyl chlorid, Somnoform has been employed as a substitute for nitrous oxid before ether anesthesia and for short operations, but has been used mostly by dentists for extractions. It is very rapid in its action, surgical anesthesia, which lasts from one to two minutes, being produced in from twenty to thirty seconds. The dose for adults is from 5 to 7 c.c., and for children 5 c.c. Patients have been kept narcotized for from fifteen minutes to half an hour, but few anesthetists care to risk repeating the dose more than once or twice. About 2 per cent. of the patients vomit and many suffer from intense headache which appears shortly after awaking. It is doubtful if the mixture has any advantage over straight ethyl chlorid, of which it is so largely composed. The methyl chlorid is supposed to hasten anesthesia, while the ethyl bromid prolongs it, but the small percentage of ethyl bromid can hardly be of any value unless a disagreeable odor is an advantage. As with ethyl chlorid, the chief danger with Somnoform is respiratory paralysis. The mortality is 1 in 10,000 or 12,000, which is less than that of chloroform (1 in 5,000 or 6,000), twice as great as that of ether (1 in 20,000 or 25,000) and four times as great as that of nitrous oxid (1 in 50,000). On account of the exceedingly rapid action of both ethyl chlorid and Somnoform it can readily be understood how easily the limits of safety may be overstepped and a dangerously deep degree of narcosis be produced in a few seconds. Reference may be made to Queries and Minor Notes, March 16, 1912, p. 806.

CARAMEL SUGAR FOR DIABETICS

To the Editor:—1. What is the chemistry of fully polymerized sugar as advised in the treatment of diabetes by Grafe (*München. med. Wchnschr.*, June 30, 1914; abstr., THE JOURNAL, Aug. 1, 1914, p. 437) and Umber (*Deutsch. med. Wchnschr.*, Feb. 11, 1915; abstr., THE JOURNAL, March 27, 1915, p. 1113)?

2. Is this sugar handled by any firm in this country?

ROY BLOSSER, M.D., Atlanta, Ga.

ANSWER.—The chemistry of caramel is not well understood. Earlier investigators regarded caramel as a complex substance composed of several ingredients, but later research, especially that of Stolle (*Chem. Centralbl.*, 1899, xi, 1021), shows that the several constituents previously isolated from caramel were not chemical entities. Stolle concluded that caramel prepared by heating sucrose (cane sugar) was a single definite chemical substance having the formula $C_{12}H_{18}O_9$. This, he claimed, is formed by the elimination of water from sucrose as follows: $C_{12}H_{22}O_{11}=C_{12}H_{18}O_9+2H_2O$. The caramel of Stolle is an amorphous substance exhibiting a conchoidal fracture and a red brown color. It melts between 134 and 136 C. and is soluble in water, but insoluble in alcohol. It contains only 0.7 per cent. unconverted sugar.

Commercial caramel, commonly called sugar coloring and used to impart a brown color to various commercial products, is usually made by heating glucose instead of sucrose. It is a dark, syrupy liquid and instead of being a definite chemical body is a complex mixture of several substances, among which are coloring substances, an odorous principle, some undecomposed sugar, a bitter substance probably caramelan, and varying amounts of water.

2. We know of no firm that sells purified caramel in the United States.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Regular, Little Rock, November 9-10. Sec., Dr. T. J. Stout, Brinkley. Homeopathic, Little Rock, November 11. Sec., Dr. Scott C. Runnels, 900 Scott St., Little Rock.

CONNECTICUT: Regular, New Haven, November 9-10. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic, New Haven, November 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic, November 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

IOWA: Des Moines, October 19-21. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

MAINE: Portland, November 9-10. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MISSISSIPPI: Jackson, October 26-27. Sec., Dr. E. H. Galloway, Jackson.

NEBRASKA: Lincoln, November 10-11. Sec., Dr. H. B. Cummins, Seward.

NEVADA: Carson City, November 1. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, October 19-20. Sec., Dr. G. H. Norton, 429 E. State St., Trenton.

SOUTH CAROLINA: Columbia, November 9. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, November 9-11. Sec., Dr. M. P. McElhannon, Belton.

WEST VIRGINIA: Elkins, November 9. Sec., Dr. S. L. Jepson, Charleston.

The English Side of Medical Education

An article under this title by Mr. Abraham Flexner in the *Atlantic Monthly* for October, makes an important contribution to the literature on medical education. It really furnishes a comparison of the English with the German system of medical education, and shows the defects and the good points in each. Medical education in this country can doubtless benefit much by avoiding the defects, and by adopting the good qualities of the two systems. An abstract of Mr. Flexner's paper follows:

The English medical school is an outgrowth of the English hospital, for it began when the English medical student attached himself to a master whom he followed through the hospital wards. Such additional instruction as the student required—for example, in anatomy and pharmacy—he obtained in schools that grew up outside the hospital, but in close relation to it. In course of time, the separate masters, coming together, formed a "faculty," and their apprentices, being pooled, formed a student body. Thereon the so-called "anatomical schools" became part of the hospital schools. But the medical training was essentially a hospital apprenticeship. The organization consisted of practicing hospital physicians; the resources were merely student fees, and the spirit was intensely and immediately practical. The so-called laboratory subjects, therefore, gradually edged their way into busy hospital schools. Their teaching was at first entrusted to certain members of the hospital staff—usually the younger members—but this soon proved to be unsatisfactory, and the teaching of the underlying sciences was in time differentiated and committed largely to full-time teachers.

The German medical schools vary in extensiveness and completeness, but all possess adequate laboratory and clinical facilities. The preliminary education has been largely along classical rather than modern lines, and without special adaptation to the demands of medical training; yet it has been a serious education of uniformly high quality. Medical teachers have been selected because of scientific eminence. These teachers are called from one university to another as vacancies occur, and in these respects laboratory and clinical teachers are on the same footing. They represent precisely the same university type of activity and ideal. In all these respects English medical education fares badly in comparison.

The English medical school possesses a hospital, and, as a rule, the hospital and its outpatient departments contain material enough for the purposes of instruction, but this material has not been carefully differentiated. Medicine, surgery and obstetrics are recognized as separate divisions; but there is little intensive specialization, and research suffers in consequence. The English hospital also lacks the laboratory equipment and staff needed for the critical study

of disease, and research laboratories with competent assistants and adequate support are almost unknown.

While in Germany the underlying sciences are well developed, particularly from the standpoint of research, in the English schools physiology is the only laboratory science which is creditably represented. The arrangements for anatomy suffice only for elementary instruction; pathology is taught only from the gross and descriptive points of view, and modern pharmacology is almost unrecognized. The meager facilities and barren outlook of the medical sciences result in a type of teaching, scientifically uninspiring to both student and instructor. In preliminary training the English students are less homogeneous and less competent than the German. The school and hospital staff from the educational standpoint is inferior. Promotion by seniority generally prevails, and there is serious inbreeding. The lower posts are filled with recent graduates, who succeed automatically to the leading positions. The worldly, as well as the professional and scientific future of the German clinician depends on his scientific productivity; he will rise only if he has successful performance to his credit. The English medical man has no such spur. Once started on the hospital ladder, he is destined to rise if he is faithful in the performance of his routine duties. Between the practicing and teaching clinical profession in England there is no distinction, and the atmosphere of the English medical school is the atmosphere of English medical and surgical practice. Facilities are not furnished for the purpose of scientific investigation. A lack of cordiality is evident between the staff physicians and the teachers of chemistry and physiology. Whereas the German university clinic is alive with ideas and with the spirit of inquiry, the English hospital casual and incidental.

The German medical school began in a university that for centuries had a lecturing faculty. During this entire period medical education had no contact with disease in the concrete. As recently as 1805, the medical students at Tübingen preferred theoretical instruction to interrogation in the presence of patients, and almost half a century later Helmholtz, on the occasion of his graduation as military surgeon, publicly expounded the operation of tumors, although he had never seen a tumor operated on.

With the development of the laboratory sciences in the university, German medicine came into close contact with disease and its manifestations. As a result, the lecturing and expounding medieval university has been transformed into the modern critical, investigating university. In one important respect, however, medical teaching in Germany has failed to modernize. The lecture course, the traditional exercise of the medieval university, is still the backbone and furnishes largely the bulk of the instruction. Even in the hospital, the student is a mere onlooker and is not freely admitted to the bedside of the patient. It is precisely at this point—and it is a point of priceless value—the comparison is all in favor of the English method.

In England the student, from the first, sees the patient at the bedside. Privileges in the English hospitals are heartily extended and the hospitals have profited thereby. The student body, serving as clinical clerks, are utilized as important aids in the care of the sick. All parties, therefore, are equally benefited by the arrangement—the patient, the hospital administration, the medical staff and the medical student.

The clinical clerkship is the only effective method of clinical education ever devised. Small groups of students—six, for example, at the London Hospital—are assigned to a visiting physician and his assistant, who have, at the same hospital, a service of sixty beds. Cases are assigned to the students or clerks in rotation. Each clerk is required to make a complete history and description of each of his cases, including the requisite microscopic examination. For these purposes he has free entry to the bedside. The student's notes, criticized and revised by a member of the staff, form permanent and essential parts of the case records. Ward rounds are made daily. The chief, his assistants and his clerks move almost noiselessly from cot to cot, conversing in low tones over the patient. At each bed the clerk in charge steps forward, reads his notes, proposes his diagnosis and suggests a line of procedure. The chief questions, criticizes, offers alternatives and stimulates a discussion in which the entire group is involved. Meanwhile, the clerk can do no harm, for, free as he is to suggest, only the chief or his assistant can prescribe.

Modern medicine on these terms is indeed an ideal educational discipline. The modern physician must be an accurate and cautious observer; he must on this basis construct his tentative hypothesis or diagnosis, which suggests a definite therapeutic procedure; and the results vindicate his observation and judgment or send him back to the facts for fresh observation and reflection. The English clerkship furnishes an opportunity for a prolonged training along these lines. The student's reaction must constitute the raw stuff out of which the teacher must develop orderly and effective mental processes. That is, the learner must act before the teacher can react on him. To begin by telling him, by pointing out, by interpreting, as the lecture or demonstration does, would be to deprive him of that initiative which is so highly educative. Learning is a game in which, whenever possible, the learner must move first. English medical education complies with this fundamental and general educational principle.

The reason so admirable a method produces such unsatisfactory results is that the clinical teachers are rarely men of scientific vision or enthusiasm. They move contentedly within the area of the known; they lack intellectual discipline, maturity and interest in research. When such teachers undertake to train students, the instruction, while conscientious and thorough, is likely to be uniform, mechanical and uninspiring. Every school offers substantially the same course; every student does substantially the same things, and spends no small amount of time and energy doing them over and over, so as to be examination-proof. Despite an excellent method, the clinical atmosphere is depressing.

The defects of both German and English medical education may be cured without sacrificing the peculiar virtues of either and, curiously enough, such remedy requires that the two methods be combined. The German method of university teaching by men who are actively and systematically engaged in the advancement of knowledge in the subject they teach, should be combined with the English method of clinical teaching.

Connecticut Homeopathic July Report

Dr. Edwin C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 13, 1915. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. Two candidates, graduates of the New York Homeopathic Medical College and Flower Hospital, 1915, were examined and passed, with averages of 84 and 85.

Alabama July Report

Dr. W. H. Sanders, secretary of the Alabama State Board of Health, reports the written examination held at Montgomery, July 6-8, 1915. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 98, of whom 64 passed and 34 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama	(1910) 79; (1915) 75.3, 76.7, 78.2, 79.3, 79.8, 80.5, 80.9, 83, 83.2, 83.4.		
Birmingham Medical College	(1914) 75.1, 75.2, 75.5, 78.5; (1915) 75, 75.5, 76.9, 78, 78.7, 82.9, 83.2, 83.9.		
Atlanta Medical College	(1914) 75.2, 77.6; (1915) 76.4, 76.7, 77.8, 80.8, 81.3, 82.7, 84.6.		
Chicago Coll. of Med. and Surg.	(1914) 77.5; (1915) 80,		83.9
University of Louisville		(1912)	78.7
Tulane University of Louisiana	(1908) 80.4; (1915) 77.6, 85, 85.6, 85.7, 86.8, 87.9.		
Johns Hopkins University		(1915)	75.9
Woman's Medical College of Baltimore		(1900)	79.2
University of Michigan Medical School		(1914)	80.7
St. Louis University		(1914)	83.4
University of Missouri		(1904)	78
Leonard Medical School		(1913)	85.7

Medico-Chirurgical College of Phila.	(1914)	76
Meharry Medical College	(1915) 79.2, 80.4,	87.2
University of Nashville	(1911)	79.2
University of Tennessee	(1912) 77.1; (1915) 75,	75.6
Vanderbilt University	(1915) 75, 77.1, 80.8, 80.9, 84.3,	88.6
University of Virginia	(1912)	85.5

FAILED

Birmingham Medical College (1913) 68.1, 70.6; (1914) 64.7, 66.9, 68.1, 68.3, 69.6, 70.4; (1915) 49.4, 52.1, 55.7, 57.7, 59.8, 61, 63.2, 65.5, 66.4, 66.6, 67, 67.9, 70.3, 71.2.

University of Alabama	(1915)	73.7
Atlanta Medical College	(1915)	64.5
University of Georgia	(1906)	58.9
Chicago College of Med. and Surg.	(1910) 64.6; (1915)	61.1
Hahnemann Med. Coll. and Hosp., Chicago	(1899)	67.2
Meharry Medical College	(1915)	65.9
Memphis Hosp. Medical College	(1912) 56.8; (1913) 43.4,	51.5
University of Tennessee	(1915)	61.1
Vanderbilt University	(1914)	72.6

Book Notices

A CAMPAIGN AGAINST CONSUMPTION. A Collection of Papers Relating to Tuberculosis. By Arthur Ransome, M.D., F.R.C.P., F.R.S., Consulting Physician to the Manchester Hospital for Consumption. Cloth. Price, $3.25. Pp. 263. New York: G. P. Putnam's Sons, 1915.

This book contains twenty-two papers on social, administrative and medical phases of the tuberculosis problem, read by Dr. Ransome before various medical societies from 1881 to 1913, and previously published. It represents an experience gained in an active participation in the antituberculosis movement, covering a period of fifty-three years, beginning in 1860, when Dr. Ransome initiated in Manchester and Salford a voluntary weekly register of all new cases of certain diseases, of which phthisis was one. In an analysis of the gradual decline of the tuberculosis death rate in England and Wales, from thirty-eight deaths per 10,000 population in the year 1838 to less than ten per 10,000 in 1913, Dr. Ransome points out the steady decline of mortality from tuberculosis in England, resulting from general improvement of sanitary conditions, the marked reduction occurring in the period of forty-three years, preceding the year 1881, when Koch's discovery of the specific organism led to direct repressive measures against the spread of the disease. While in accord with the present policy of direct repressive measures in the control of individual cases of tuberculosis, the author lays chief emphasis on general improvement of sanitary conditions as the most effective means in the gradual eradication of the disease.

In 1894, on the basis of the previous steady decline of the tuberculosis death rate in England, Dr. Ransome predicted the disappearance of tuberculosis in England in thirty years. This prediction the author revised in a subsequent article, in 1904, in which the eradication of tuberculosis in England is set for 1930, provided general sanitary reforms, combined with modern repressive measures against individual cases of the disease, continue to develop, eliminating from the life of the nation the conditions responsible for the propagation of tuberculosis, among which the author lays special emphasis on the necessity of better land drainage, purer outer air in communities, effective ventilation of homes, public buildings and working places, improvement of housing conditions, a more wholesome food supply, temperance and other sanitary reforms. This idea of the greater effectiveness of general sanitary reforms (as against direct repressive measures at present in operation) runs through the book, substantiated by study of English mortality statistics, comparative study of the effect of poorly and well drained localities and improved housing conditions on the prevalence of tuberculosis, the effect of better food supply, better ventilation of public buildings and working places, the effect of intemperance, etc. Impure air charged with organic matter ("air sewage") insufficient light and lack of sunshine are emphasized as factors in keeping up the virulence of tubercle bacilli in dried sputum ("tubercle dust"), the propagator of the disease in infected homes, public buildings and working places.

The author gives his experience in 1884-1887 with the use of iodoform and ozonized oxygen, in the treatment of pulmonary tuberculosis, with no apparent effect on the course of the disease. Two articles give the results of painstaking study of growth of tubercle bacilli under varying conditions of light and fresh air. In an analysis of the causes of decline of the tuberculosis death rate in England, the author reiterates the great importance of general sanitary reforms in the fight against tuberculosis. The book will prove of special interest to the medical profession, particularly at present, when in the gradual realization of institutional and administrative provision for the control of tuberculosis in our communities, the further improvement of general sanitary conditions is receiving comparatively insufficient attention.

GAS POISONING IN MINING AND OTHER INDUSTRIES. By John Glaister, M.D., D.P.H., F.R.S.E., Professor of Forensic Medicine and Public Health in the University of Glasgow, and David Dale Logan, M.D., D.P.H., Surgeon to the Coltness Ironworks, Newmains. Cloth. Price, $3.50 net. Pp. 471, with illustrations. New York: William Wood & Co., 1915.

This is an exceptionally complete study of the entire subject. The prevention and treatment of gas poisoning is of particular interest to the mining industries. Cases of poisoning are continually brought to the attention of medicolegal authorities, and must be studied from the aspects both of a coroner's office and of the Workmen's Compensation Act. The first author of the book is a medicolegal authority of note; the second author has been for many years chief surgeon of mining and iron working industries in Scotland. The literature has been studied exhaustively, and numerous references are quoted throughout the book.

In the chapter on resuscitation is a discussion of the various apparatus for rescue work, and considerable space is devoted to one particular resuscitating device. Unfortunately, the authors have apparently not observed the report of the joint committee appointed by the U. S. Bureau of Mines and the American Medical Association, which considers resuscitation from mine gases and which does not give unqualified approval to this apparatus.

For those especially interested in this field, this book is a unique and invaluable reference work.

MALAY POISONS AND CHARM CURES. By John D. Gimlette, M.R.C.S., L.R.C.P., Resident Surgeon of Kelantan. Cloth. Price, 85 cents. Pp. 127. Philadelphia: P. Blakiston's Son & Co., 1915.

There are few books which give encyclopedic information about the poisonous plants of tropical countries. While the descriptions are by no means confined to the plant kingdom, nevertheless the Malay poisons as elsewhere are largely of vegetable origin. The information recorded was obtained during a residence of eighteen years in the Malay States. Malay medicine is a mixture of tradition, superstition and sorcery with some empiric knowledge; the author has tried to differentiate the last from the others. The native name of the poison is given, together with the native and botanic names of the plant furnishing it. The symptoms produced, the native antidotes, if any, and, where known, the chemical constituents and pharmacologic action, are briefly mentioned. The most astonishing feature of the work is the lack of scientific information concerning the chemistry of the poisonous plants described. This is not the fault of the author, for he has a good command of the literature, but it is due to the fact that phytochemistry is an almost unexplored region. Doubtless, there are thousands of plants in Africa and South America of whose chemistry and pharmacology science is as ignorant as it is of the Malay plants. The book can have little value to the practitioner of medicine (except in the Orient), but it is a worthy contribution to science.

A GUIDE TO THE USE OF TUBERCULIN. By Archer W. R. Cochrane, M.B., F.R.C.S., Major, Indian Medical Service, and Cuthbert A. Sprawson, M.D., B.S., M.R.C.P., Major, Indian Medical Service. Cloth. Price, $2.25. Pp. 181. New York: William Wood & Co., 1915.

This book is a practical manual for practitioners on the method of administration of tuberculin. Particular attention is paid to the question of dosage. Typical cases are described, and the method of estimating the dosage for each is outlined. The theory of the use of tuberculin is considered only enough to show the actual indications for its use.

Miscellany

Effective Industrial Hygiene

An important result of the present "safety first" campaign is the opening of our eyes to a realization of the fact that it is not sufficient to make industries "safe" merely from an accident standpoint: they shall be "safe" also from a health standpoint. This principle is the keynote of an article by J. W. Schereschewsky of the Public Health Service in *Public Health Reports* on a plan for education in the avoidance of occupational diseases and injuries, in which he gives a tentative scheme for accomplishing this object. He says that the approximate average yearly loss through sickness of workers in this country would probably be about the same as it is in Europe—not far from eight to nine days for each of the 25,000,000 to 30,000,000 industrial workers, or an economic loss of $360,000,000 if the average annual earnings are $600. This would not take into consideration the loss due to premature physical decline or reduction in earning capacity, which at present cannot be estimated.

Any plan for improvement in this respect involves the education of every one concerned, which, Schereschewsky says, must be general in nature because of the close interdependence of all the units of society. Improvement in this respect first requires the education of the medical profession and the stimulation of interest in the study of diseases of occupation, the collection of clinical data bearing on occupational diseases, and the promotion of research along these lines. Education of the public is important, because an enlightened public opinion is necessary to the successful carrying out of any measures which may be recommended after careful study of the problems involved.

Schereschewsky says that although industrial workers constitute by far the largest class of medical patients, yet physicians in general regard the study of the relation of disease to occupation as a specialty with which the general practitioner and the specialist in other fields are not closely concerned.

The influence of the industries on health is a subject which has been given little attention in the courses of instruction in medical schools. Hospitals are the chief sources of clinical material and are the natural locations where intensive studies of diseases may be made. In order to utilize this source of information in regard to occupational diseases, the adoption of systematic methods and terms for recording occupations and diseases is necessary. Standard methods of history taking must also be employed. Death certificates should correctly and exactly indicate occupation and use the international system of recording deaths. Accurate information of this kind would be invaluable in the study of the mortality of occupations. Even if this were carried out in a relatively small number of hospitals, it would soon produce an accumulation of valuable information.

The instruction of the public to cooperate in procuring safety in the industries and the securing of personal and collective hygiene and sanitation, Schereschewsky says, must be the result of governmental action, federal, state and municipal, allied with other civic agencies. Minimum standards of industrial sanitation and legislation must be established, and this must be the work of the federal government. The adoption of such standards is the work of the legislatures of the states, but this need not preclude the adoption of additional measures by municipalities or by the employers of labor, labor organizations, etc.

As features of a public educational campaign in the prevention of occupational diseases and injuries, Schereschewsky gives the following outline: permanent exhibits; traveling exhibits including moving pictures; public lectures; bulletins issued for popular distribution by federal, state and local health authorities and by private associations; popular articles in the public press, and instruction in the public schools. All of these measures have been adopted and carried out to a certain extent in a few communities; some have been more generally employed.

Extensive results from any plan of education can be expected only after years of work similar to that outlined above. The employers of labor of course constitute an important factor in the improvement in respect to the prevention of occupational diseases. They too need to be educated, but now the idea is fast gaining ground among them that it is poor social and business economy to subject workers to avoidable industrial hazards. As a consequence, many employers are voluntarily improving working conditions in their plants, supervising the health of their employees and attempting educational measures among them. These measures have been found to yield increased efficiency and economy in production and have fostered the spirit of cooperation.

Liability for Pure Water

In an important decision by the supreme court of New Jersey in the case of *Jones* v. *Mount Holly Water Company*, the verdict obtained by the plaintiff for $750 damages on account of the illness of his children has been affirmed. It was shown to the satisfaction of the jury and the supreme court that contamination of the water supply by fecal matter, which was declared to be the cause of the illness of the children, was the result of negligence on the part of the water company. The responsibility and duty of a water company to furnish pure water is thus stated by Judge Kalisch:

"It must be borne in mind that the defendant company was in the water-supply business for profit. The plaintiff had paid for the supply which he was to receive, in advance. Hence it became the duty of the defendant company to give to the plaintiff water fit for domestic purposes, including fitness for drinking. Water is a necessity of life, and one who undertakes to trade in it and supply customers stands in no different position to those with whom he deals than does a dealer in foodstuffs. He is bound to use reasonable care that whatever is supplied for food or drink shall be ordinarily and reasonably pure and wholesome. . . . Actual notice or knowledge of the unwholesomeness of the water was not an essential element to be proven in order to establish the defendant's liability. It was sufficient if there was testimony tending to show that the defendant, in the exercise of reasonable care, might have discovered the unwholesomeness and dangerous condition of the water."

Health Test for Garment Workers

The United States Public Health Service has announced the results of an investigation of the garment workers of New York City. About 3,000 garment workers volunteered for physical examination, 1,000 of whom were women. Of this number only about 2 per cent. were free from physical defect or disease. None was found to be suffering from vocational disease but the sedentary industry was found to exercise a deleterious effect on health and efficiency in those having certain defects and diseases. There were recorded in all 13,367 defects of all kinds of which 3,916 were in females, or an average of four defects and diseases in each individual examined. Among the male workers the incidence of tuberculosis was found to be about ten times that in the United States Army and three times the army rate among women. It was of interest to note that the previous military training to which the foreign workers had been subjected before coming to this country had a marked effect in preventing the development of faulty posture habits.

The Antivivisectionists

Mr. Stephen Coleridge is a director and the mouthpiece of the English National Anti-Vivisection Society. Concerning complaint of its attitude toward him and the Society the *Medical Press and Circular* has, among other things, the following to say: "We regard the National Anti-Vivisection Society with the same benevolent amazement with which we regard anything else which is at once picturesque, emotional, and futile—the Society for the Restoration of the Stuarts to the Throne of Great Britain, for example. And, as to Mr.

Coleridge himself, we esteem him to be a great asset to the world of science. He relieves the monotony of accuracy which too frequently besets it. His excursions into it, like the Iron Duke's excursions into the French language, are courageous; they cause distraction and increase the gaiety of nations. A lawyer steeped in sentiment is sufficiently rare to be really remarkable, but when he insists upon floundering about the quagmires of scientific investigation with no better guide than a tremulous tenderness for the nerves of the nether animals, he becomes a priceless public possession. When the Hon. Stephen Coleridge takes the floor to suffer for a rose in aromatic pain, or to writhe vicariously for a narcotized newt, the chorus of sterile spinsters weeps in wistful sympathy, the eunuchs applaud, and the world wonders. For ourselves we emphatically disclaim any semblance of spleen, but we confess to a share in the wonder."

Medicolegal

Another Fraudulent and Unlawful Use of the Mails

(Moses vs. United States (U. S.), 221 Fed. R. 863)

The United States Circuit Court of Appeals, Second Circuit, affirms a judgment against the defendant Moses, who was the general manager of a company that made "oxypathors," and who was convicted of having made unlawful use of the mails. The court says that the indictment charged that the defendant had devised a scheme to defraud; that the scheme was to sell the device called an oxypathor on positive representations that it, among other things, "begets in reality a supplementary breathing through the skin and membranes of the human body"; that its application "increases the amount of oxygen consumed by the body"; that it "has the direct effect of increasing vital combustion and the circulation"; that it "causes the body to attract oxygen from the air"; that "by the proper use of the oxypathor the owner is absolute master of disease in all acute affections and in far advanced stages of the most formidable chronic diseases," etc.; that the scheme was to sell the oxypathor by means of said representations for $35, and to effect the sales by means of letters and advertisements sent through the mail; that the defendant knew these representations to be false; that the oxypathor was in truth and in fact wholly inert, powerless, lifeless, and dead, and utterly worthless and incapable of producing any of the results aforesaid, and was entirely useless for any purpose, except to sell to people who did not know the falsity of said representations; that as one of the instruments of said scheme to defraud, and "in and as a part of the executing of said scheme to defraud, and in attempting so to do, defendant did feloniously, unlawfully, and knowingly cause to be delivered by mail a certain letter," which was set forth. It gave instructions to an agent as to methods of effecting sales, and, as the indictment charged, was delivered through the mail to the addressees. It was contended that the indictment did not charge a crime within any statute of the United States; but the court deems it too plain for argument that the indictment charged an offense under Section 215 of the criminal code. Again, counsel for the defendant treated the cause as if the only alleged false representation was that the oxypathor "would cure all diseases," and that unless the government showed that it was absolutely worthless as a cure for disease the charge in the indictment was not proved. He ignored entirely the other representations. But whether the defendant would have made as large sales if he had merely represented the oxypathor as a cure-all was not important. He went further—quite shrewdly as the court thinks—and sought by his suggestions as to its oxygen-increasing effects to induce its purchase by people who had heard of oxygen and the absolute necessity of its introduction into the system by breathing pure air. If the evidence justified the jury in finding that these assertions were false, and that he believed them to be false, they might find a verdict against him. The physicians called for the government did not undertake merely to express some general condemnation. The witnesses testified that to an experienced physician nothing was indicated by the circumstance that a man felt better after he had lain recumbent for a time with the oxypathor applied to him when the only ailment he testified to was a "lame back" or "nausea." They testified to the value of rest, compresses, hot and cold, of diet, of bathing, of exercise, of sleep, of fresh air, of regularity in the functions of the bowels, of hygiene and sanitation generally. The defendant's literature impressed on all users of the oxypathor the importance of paying great attention to these things, and the government's witnesses testified that the mere circumstance that some one had used an oxypathor at the same time that the treatment was going on was no indication that it contributed anything to the result.

When Damages Allowed for Mental Suffering and Without Evidence Thereof

(Muskogee Electric Traction Co. vs. Rye (Okla.), 148 Pac. R. 100)

The Supreme Court of Oklahoma, in affirming a judgment in favor of plaintiff Rye for damages for personal injuries sustained while he was alighting from one of the defendant company's street cars, says that the rule is well settled that mental pain and suffering, accompanying personal injury or physical pain, is always the subject of compensation. The mental anguish, however, should be connected with the bodily injury, and be fairly and reasonably the natural consequence that flows from it. In this case the evidence tended to show that the plaintiff had suffered a severe injury to his hip and shoulder; that the injury to his shoulder was not only permanent but it was also progressive, that is, it would continue to grow worse as long as the plaintiff lived; that he suffered and was still suffering great physical pain. In such circumstances, direct testimony of mental anguish and suffering, while proper, is not indispensable to a recovery therefor. Damages of this nature are ordinarily determined by the circumstances of the case, as disclosed by the evidence, the amount thereof depending on the seriousness of the injury.

Charges for Medical Attention as Advances to Tenant

(Ligon vs. Roberts (Ala.), 68 So. R. 319)

The Supreme Court of Alabama affirms a judgment, disallowing a charge of $7.50 by the plaintiff for three visits as a physician, in this action to enforce a claimed landlord's lien for advances alleged to have been made to the defendant as the plaintiff's tenant. The court does not say clearly that the plaintiff would under any circumstances have been entitled to such a lien for such services. It says that he testified: "The professional visits that I made to Mr. Roberts' were June 16, 17 and 18. I charged $2.50 for each visit." To whom these visits were made was not shown by the plaintiff. If it be assumed that medical attention to the tenant or his family, or to his laborers, is advances under the statutes, the evidence for the plaintiff did not show that such services were rendered the tenant, the tenant's family, or the tenant's laborers; if rendered pending the tenancy, they might have been performed for some one else at the defendant's residence located on other lands than those rented from the plaintiff.

Use of One Roentgenogram to Illustrate Criticism of Another

(Boddington vs. Kansas City (Kan.), 148 Pac. R. 252)

The Supreme Court of Kansas says that in order to show the nature of the plaintiff's injury, alleged to have been sustained by reason of a defect in one of the defendant's streets, a roentgenogram was used, purporting to show a fractured rib and an injury to the shoulder. In order to elucidate the criticism of this roentgenogram another witness offered a roentgenogram of the breast of a child 5 years old to show the location of the ribs. It was urged that this was incompetent and prejudicial. But its significance was for the jury, who were told it was the picture of a child, and not of a man of the plaintiff's age, and, like an ordinary map, diagram, or model, it might be properly used by way of illustration.

Society Proceedings

COMING MEETINGS

Am. Assn. for Study and Prevention of Inf. Mortality, Phila., Nov. 10-12.
Hawaiian Medical Society, Honolulu, Nov. 27-29.
Mississippi Valley Medical Association, Lexington, Ky., Oct. 19-21.
National Assn. for the Study of Pellagra, Columbia, S. C., Oct. 21-22.
Southern Medical Association, Dallas, Tex., Nov. 8-11.
Virginia State Medical Society, Richmond, Oct. 26-28.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held in Indianapolis, September 22-24, 1915

The President, Dr. F. B. Wynn, Indianapolis, in the Chair

Increased Blood Pressure

Dr. W. J. Leach, New Albany: The ophthalmologist is frequently the first to discover the ill effects of increased vascular tension, manifested in various ways, as in retinal hemorrhage or in retinitis, which so often accompany the various forms of nephritis, especially the interstitial form. Vascular tension is a symptom or manifestation of a disease which it sometimes seems absolutely necessary to relieve in order to cope successfully with the original disease. The specific cause of increased vascular tension seems to be some form of toxemia; however, cardiac hypertrophy or vascular sclerosis may be secondary causes. Atheroma is most common and most damaging in the arterioles. A class of patients who are very prone to have atheroma are those who are overfed and have overmuch mental work, and too little physical exercise: those who carry heavy responsibilities, especially if inclined to worry about affairs. All such should have frequent pressure records made. Blood pressure record is more important than temperature record in patients past middle life. In the treatment, nutritional balance should be reestablished. Toxins being the cause of hypertension, we must stop their production and force their elimination. Of the long list of eliminants, I have chosen the following for their general utility and reliability: mercury, saline salts, potassium iodid, water, digitalis and pilocarpin. In most cases a narrow limitation of the protein foods is absolutely imperative. Chloral and veratrum viride are choice remedies with which to relax the arterioles and flush the skin. We should keep in mind the importance of healthy lymph vessels and an unimpeded lymph stream, remembering that if the blood tension is too high the lymph stream is impeded; therefore the two circulatory systems are incoordinated.

DISCUSSION

Dr. Lafayette Page, Indianapolis: Some of us have very little definite knowledge of the relationship between high blood pressure and eye conditions, or even conditions of the ear, nose and throat. Often hyperemias of the retina and retinal hemorrhages point to nephritis long before the general practitioner has any inkling of the existence of such condition.

Dr. Frederick C. Heath, Indianapolis: Dr. Leach said that the ophthalmologist is frequently the first to discover the ill effects of increased vascular tension. That is correct. The question I want to raise is: Do those changes really come early in the disease, or has the disease been in the system for a long time before such changes take place in the retina? My opinion is that those changes in the eye would not be produced until the disease has been in the system a long time, producing changes first in the blood and secondarily in the eye and other parts of the system.

Dr. W. J. Leach, New Albany: It is futile to attempt to treat diseases which have their foundation in a systemic condition in any local way. Retinitis or hemorrhagic conditions in the retina are not early manifestations of a nephritis: they are manifestations of continued intoxication. Toxemia is the first manifestation in these cases; then come the gradual changes in the vascular, blood and lymph systems.

Use and Misuse of the Tinted Lens in Refraction

Dr. Fred M. Ruby, Union City: While tinted lenses probably do not come under the medical practice act, they should, inasmuch as they are applied for or to a pathologic condition. Before resorting to the use of tinted lenses we should first consider the causes of photophobia—the mild cases that cause the patient to be restless in strong lights, especially if he uses his accommodation. We should try to remove the cause, and thus obviate the necessity for any lens. To give a patient a tinted lens, however, with the idea that it will alleviate discomfort until the rational treatment has had time to take effect, is all right. In choosing such a lens, we know that the normal eye is accustomed to a certain proportion of the ultraviolet rays, but as this proportion increases, the irritation likewise increases. It would seem that a light-absorbing lens which admitted none of the ultra-violet rays would be ideal; but such is not the fact. We find many eyes being as distinctly irritated by the total absence of these rays as with too many. The ideal lens, so far as I have been able to determine, is one which absorbs most of the irritative rays, but allows a few to penetrate and stimulate a certain healthy reaction in the receiving end-organs of the retina. Naturally, the same lens absorbing the same proportion of the ultraviolet rays will not satisfy every eye. I have found tinted lenses of use in picture show operators, chauffeurs, workers on white goods, workers in blast furnaces, glassblowers, and oxyacetylene welders; also when structural deficiencies allow the ultraviolet ray to penetrate too much into the eye; when the patient has asthenopia as one of a train of nervous symptoms, and also following light trauma. As an adjunct to the treatment of conjunctival photophobias it is a valuable agent, provided the primary object has not been lost sight of and the conditions corrected.

DISCUSSION

Dr. John R. Newcomb, Indianapolis: There are certain occupational conditions in which tinted lenses are necessary, but until we know the effect of these various rays of light on the natural structures of the eye we really are practicing slapstick therapeusis when we attempt to prescribe "So-and-So's" lenses for every patient who complains of a little irritation. My experience has shown me that the vast majority of photophobias are due to the fact that the patient has not the proper correction, and the majority of such patients, with proper correction, will get rid of the photophobia very quickly. If you give that patient a tinted lens, regardless of whether he needs it or not, you will make a cripple out of him, so far as his eyes are concerned. They will become utterly dependent on subdued light, which is not natural. Before using a tinted lens, we must determine that there is actual retinal irritation, or some change in the eye which demands protection from light, which is absolutely normal and natural.

Dr. A. B. Knapp, Vincennes: I have always regarded tinted lenses more as a commercial fad than as a therapeutic necessity. If we would examine carefully enough all of our cases of asthenopia, we could find the cause and apply the remedy. If the nares, including accessory sinuses, lacrimal apparatus and conjunctival sac, are carefully searched, we shall frequently find the cause. We must also look into the environment and general physical condition of these patients.

Dr. G. F. Keiper, Lafayette: This subject is enveloped in a haze because we are not expert enough to know how to make the application of colored lenses. At the foundation of all this work must necessarily lie some instrument of precision, and I believe we have that instrument in the spectroscope. In certain selected cases, colored glasses are necessary in order to cut out harmful rays of light; but in order to arrive at the conclusion as to the kind of a glass needed, some particular form of instrument, like the spectroscope, is needed. Dr. Newcomb has well emphasized the point that the very first essential is correction of the error of refraction, and in this correction a great many of these irritative troubles immediately disappear.

Dr. A. E. Bulson, Jr., Fort Wayne: The tinted lens has only a limited use for the skilful ophthalmologist. The majority of cases of sensitiveness to light have a founda-

tion that requires most careful consideration, not alone so far as pertains to correction of errors of refraction, but also correction of various anomalies requiring general treatment.

DR. J. O. STILLSON, Indianapolis: I have frequently seen cases in which a very light tinted lens was a great comfort. It is not my habit to allow patients to wear these glasses for any undue length of time, on account of the psychologic effect which might lead their minds astray. However, the only colored glasses with which I have had much experience are the very light bluish ones, which are tinted just enough to take off the glare of light.

DR. J. D. HEITGER, Bedford: To cut out all the ultraviolet light is bad; but if there is an excess, it is advisable that it be toned down. To use a tinted lens as a continual lens is a mistake.

DR. F. C. HEATH, Indianapolis: I am in accord with what has been said as to the necessity of making careful diagnoses so as to ascertain the cause of the sensitiveness to light, and also with regard to avoiding the formation of the smoked glass or tinted glass habit. Some of us are going to an extreme in our opposition to tinted glasses. They certainly have a field of usefulness. A large number of patients coming to the oculist are neurotics—at least there is a neurasthenic element in the case. Whether you call it a psychologic effect or something else, they occasionally get relief from the tinted lens.

DR. CASEY A. WOOD, Chicago: Probably the most common ordinary cause of chronic photophobia is some form of heterophoria. The difficulty of using both eyes together with ease and without strain may, of course, be associated, as it often is, with a refractive error; but when you correct the refractive error you really relieve the extrinsic muscle difficulty, and there is where the patient gets relief from the photophobia. Photophobia is almost always due to congestion of the vessels of the choroid. Every case of photophobia that comes to us should be very carefully investigated, and the cause discovered, if possible, and removed.

(To be continued)

KENTUCKY STATE MEDICAL ASSOCIATION

Sixty-Fifth Annual Meeting, held at Louisville, Sept. 21-23, 1915

The President, DR. J. W. KINCAID, Catlettsburg, in the Chair

Pneumonia in Children

DR. J. MARTIN, Cynthiana: Outside the general management of each individual case, we must, first, relieve the congestion; second, stimulate the specific phagocytosis, and third, prevent absorption. Symptoms must be relieved as they arise. Drugs intelligently prescribed do good; but when they are ordered carelessly or according to an unreasoning routine, much harm may be done.

Lobar Pneumonia

DR. BURNETT W. WRIGHT, Bowling Green: Developing in the course of some other pulmonary disease, lobar pneumonia may be more or less limited; but when it does not occur as a complication of a previous affection of the lungs, it as a rule affects at least an entire lobe. In the large majority of cases, the condition is acute, but it does occur in a chronic form, resolution occurring with a solidification present for several weeks, after the crisis should have occurred. Occasionally the exudate fails to liquefy, takes on a fibroid change, and the solidification becomes permanent. The question of the immunity to lobar pneumonia is one of individual resistance against the virulence and amount of the infection. The bacterial cause we may consider omnipresent, and repeated attacks must be blamed on damaged lung tissue of subnormal resisting power.

DISCUSSION

DR. PHILLIP BARBOUR, Louisville: The mortality of lobar pneumonia in adults is quite high, while in young children it is not over 5 per cent., and most authorities put it at from 1 to 3 per cent. A child with a deposit of fibrin in the lung, and with a heart strong enough to pump blood through the rest of the lung, will live through a lobar pneumonia. But a child with catarrhal or bronchopneumonia, with every bronchus and bronchiole filled with mucus, will die because it will strangle to death with its own fluid.

DR. HENRY E. TULEY, Louisville: One reason for the difficulty in making a diagnosis of pneumonia is that we are too prone to do away with the stethoscope in the examination of the child's chest. Take an infant of 1 or 2 years of age, and it is absolutely impossible to examine the chest of that child throughout with the ear. It is absolutely essential to use a bell stethoscope which will cover every area of the child's chest. This is particularly true of areas of consolidation, largely of the infra-axillary vein, where it seems that there is considerable distance between the back of the head and the ear. I have seen a case of central pneumonia with delayed transmission of the sounds to the surface that would give bronchial breathing, and except for the clinical signs one would not be able to make a diagnosis for several days until the process had gradually worked its way to the surface. One of the most frequent of the valuable diagnostic signs is the absence of a respiratory murmur over the consolidated area.

DR. LEON SOLOMON, Louisville: During the winter of 1893 and the spring of 1894 there visited Kentucky, and in particular Louisville, a type of pneumonia which will be remembered by many of the Louisville physicians, all of the patients dying. I recall the case of a man who died of pneumonia before the diagnosis could be made. Patients in the wards recovered fully from other diseases, were ready to go home, were stricken with pneumonia and were dead within from twenty-four to thirty-six hours, the diagnosis not having been made until necropsy revealed the nature of the disease.

DR. W. W. ANDERSON, Newport: I should like to emphasize the point of a sense of resistance under the percussion finger as of use in determining small areas of deep consolidation. In any case of acute inflammation of the lungs or of beginning chronic inflammation, while it is still in the early stages, you will find a resistance just exactly as you find it over the inflamed appendix or gallbladder.

DR. W. F. BOGGESS, Louisville: The treatment of pneumonia resolves itself into some very simple, practical way of handling it. First, is plenty of fresh air. The patient should be kept in a room which is well ventilated, with all the windows wide open even in winter time. Some years ago we had a patient in the City Hospital, with double pneumonia, with a temperature of 105, pulse 140, and respiration 60. It looked as though the patient was going to die. He was put under the awning of an open window, and the next morning, instead of being dead, when I raised the awning he was much better. He slept well, and subsequently recovered.

DR. W. T. REDDICK, Paducah: The use of creosote carbonate is very advantageous in the treatment of aged persons and infants who have pneumonia, particularly in those patients who are plethoric and have a full-bounding pulse. Veratrum is especially valuable in these cases.

DR. ARCH DIXON, Henderson: The best treatment for pneumonia is, first, good ventilation, with the windows of the room wide open, and second, cold packs, especially in the sthenic cases; the whole chest should be enveloped with them, and they should be taken off and reapplied. In this way the temperature is reduced and the patients go to sleep. I have used creosote carbonate a great deal and with good results.

A Plea for a More Thorough Examination of Cases Presenting Symptoms Referable to Pulmonary Tuberculosis

DR. O. O. MILLER, Louisville: The following are the indications which should lead us to the examination of the chest for evidence of pulmonary tuberculosis: 1. A family history of tuberculosis in persons complaining of ill health. 2. A history of hemoptysis. 3. A history of pleurisy or fistula in ano. 4. Evidence of past or present tuberculosis of lymphatic glands or other structures. 5. Cough with or without expectoration. 6. Hoarseness or loss of voice. 7. Loss of flesh or strength without obvious cause. 8. Light lividity

or restlessness on exertion. 9. Persistent pyrexia, rapid pulse, low blood pressure, or complaint of night-sweating, or repeated chills. 10. Anemia or dyspeptic symptoms in a young adult. 11. A recent acute illness with protracted convalescence, especially from the infective fevers of the young. 12. Continued general weakness following childbirth. 13. History of recent exposure to infection. 14. History of malaise, langor, anorexia or what the patient may call being run down.

Medical Treatment of Incomplete Abortion

Dr. Bernard J. O'Connor, Louisville: Two distinct facts stand out prominently in the causation of hemorrhage and infection. In the former, the uterus contains some foreign body which it is trying to expel, or the musculature of the uterus is impaired, while in the latter, the infectious material has in some manner been introduced from without into the body of the uterus. An unemptied uterus predisposes to infection. The scientific treatment for incomplete and inevitable abortion is to empty the uterus promptly, avoiding at the same time any procedure which might lead to the introduction of infectious material, into either the uterus or the blood stream.

DISCUSSION

Dr. Edward Speidel, Louisville: We should avoid vaginal examination in cases of abortion unless there is a positive indication for them. My treatment of abortion is active interference.

Ossification of the Bones of the Hand

Dr. J. W. Pryor, Lexington: My belief that normal ossification of bones presents evidence of heredity is based on the facts that we may find similar conditions in the chronological order in the ossification of the bones of the carpus, and that when extra epiphyses are found to be present they may be found in the hands of the brothers and sisters. I have encountered only a few instances in which there was an extra epiphysis present, such as that occasionally found at the proximal extremity of the metatarsal bone of the index finger. Unfortunately, when I did find this extra epiphysis present, the phenomenon occurred in most instances in the only children of the parents, and I have not been able to follow the families. I have had abundant opportunity to observe the similarity of the order of the ossification of the bones of the carpus in the hands of brothers and sisters. I have followed these cases through a number of years. In some instances I have made examinations several times during the year, and when necessary during the period of several years in succession in order to obtain results.

Complications of Middle Ear Suppuration

Dr. L. S. Givens, Cynthiana: In the acute diseases of the middle ear cavity which may lead to brain abscesses, the two most vulnerable spots by which infectious matter may enter the brain tissue or its membranes directly are the tegmen tympani or tegmen antri, by erosions or through dehiscences. Labyrinthitis with acute otitis media is usually the avenue to a fatal meningitis in those cases in which death occurs a few days after the beginning of the suppurative process. Secondary involvement of the labyrinth is seldom encountered in chronic suppuration. When present, the mischief has usually been done in the acute stage of the disease, and although both the oval and the round windows may have remained bathed in pus for years, extension to the labyrinth seldom follows. In four of twenty-one cases, the duration of the suppuration was unknown, in seven there was a history of chronic suppuration, while in ten intracranial involvement following an acute suppuration of the middle ear occurred.

DISCUSSION

Dr. William J. Thompson, Newport: Ninety-five per cent. of all middle ear troubles originate in the throat or nose. From the middle ear it is only a step to the antrum, and only a short step from the antrum to the mastoid cells. When the mastoid cells are involved, we may not only have abscess of the brain, but also have the lateral sinuses denuded, and the patient is liable to die before we think he is seriously ill.

Dr. B. A. Bledsoe, Newport: In a chronic otitis media with a large perforation in the drum, with pus escaping from the perforation, only a small part of the necrotic area is seen. The destruction is going on in the entire middle ear and extending back into the mastoid antrum, involving the mastoid cells. Unless tension is increased in the mastoid cells, there are not going to be marked symptoms of mastoiditis. In chronic cases, when the drainage is free, a mastoid inflammation may produce an acute exacerbation, and the most important complication to remember is that of brain abscess.

Dr. W. B. McClure, Lexington: The remedy to prevent this condition is free drainage by opening the tympanum. The general practitioner may very readily, with a good light and the proper instrument, establish drainage, and in a large percentage of these cases the mastoiditis and other extensions following mastoid involvement may thus be prevented. I believe that in every case in which there is a bulging red ear drum, with pain, if an incision is made and the contents of the middle ear let out, not only will the pain be relieved and external drainage established, but complications also will be prevented.

Dr. J. F. Reynolds, Mount Sterling: No doubt many have diagnosed abscesses in the liver, kidney, spleen and various other organs without being able to tell the origin of the septic material. Have these patients ever been asked if they have ever suffered from middle ear suppuration? If we cannot find the origin of the septic material elsewhere, we should always inquire of these patients as to whether or not they have suffered from middle ear inflammation.

Focal Infections

Dr. N. T. Yager, Louisville: In all cases of obscure systemic derangement, a thorough examination of the oral cavity should be made by a competent dentist and roentgenograms taken of every tooth. One should not take the patient's word for the condition of his teeth and mouth. Many teeth are extracted for apical abscesses from which the patient has experienced no local inconvenience. More attention should be paid to physical diagnosis and bacteriology by the dentist and cooperation of the medical and dental professions.

DISCUSSION

Dr. M. L. Ravitch, Louisville: The teeth sometimes play an important part in infections. I recall a case in which the jaw was affected, and the disease was diagnosed as cancer. At my suggestion certain teeth were extracted, and after the use of mild antiseptics, healing took place and very little scar was left. It was not a case of cancer at all but a condition brought about by diseased teeth.

Dr. John J. Moren, Louisville: At one time I began to suffer with pain in my joints and hands, so that shaking hands was absolutely painful to me. I had a lower molar tooth which was hurting me a great deal. I went to a dentist for the purpose of having it extracted, if necessary, but he refused to extract it because he wanted to save it. I decided to take the initiative myself. I had a roentgenogram made, and it showed an abscess in two roots. The tooth was removed, and within two weeks I had practically no pain either in my joints or in my hands. I did not take any medicine.

Dr. Michael Casper, Louisville: It is a common occurrence for patients to have unerupted teeth. A great many cases of facial neuralgia and of headache, especially lateral headache, can be explained on the ground of unerupted teeth which are not discovered until roentgenography is resorted to.

Dr. C. E. Purcell, Paducah: A few years ago a young woman came under my care who had intolerable pain over the side of her face. Her condition had been diagnosed as tic douloureux, and she was advised by a surgeon to have the ganglion resected. He was about to remove the ganglion, but for some reason or other his time was so occupied that he did not get to do it, and the girl was dismissed from the hospital. She went home, her dentist extracted a molar tooth which was badly decayed, and she recovered.

(*To be continued*)

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

(*Continued from page 1304*)

Treatment of Fractures

DR. JOHN B. ROBERTS, Philadelphia: The essentials of subcutaneous fracture treatment, so far as the injury is concerned, are anesthesia, with comparison of the normal limb and accurate reconstruction of bony contours; verification of line of fracture and accuracy of reduction by Roentgen ray when practicable; anatomic and physiologic knowledge of muscles and bones; well-fitting retentive appliances; early frictions, skilful early mobilization, and careful massage with frequent inspection.

DR. JOHN B. LOWMAN, Johnstown: Open treatment of fractures has taught us that in some cases delayed union is caused by too close approximation, thus inhibiting callus formation, producing bone absorption and leading to infection and necrosis of bone; it has also taught us never to plate a compound fracture. The open treatment is indicated in fractures which cannot be reduced properly, especially complicated fractures around joints. Bone grafting seems to be superior to all other methods, although these other methods have their advantages. In all fractures of the bone shaft, plating is the best method and should be done as early as possible. Out of twenty-five fractures of the shaft of the femur plated, twenty-three patients are back at work at their former occupation; this has been the exception in those treated by the closed method.

DISCUSSION

DR. WILLIAM L. ESTES, South Bethlehem: The American Surgical Association appointed a committee two years ago to standardize as far as practicable the various results as regards treatment of fractures, but at the very outset our work was almost entirely nullified by the fact that we could get proper records from only a very few sources in the United States. For that reason the committee elaborated a form of record which we are trying to have introduced, and which we believe will give us an opportunity to collect data which will finally lead to some sort of result in establishing what ought to be the proper treatment of the ordinary fracture.

DR. P. G. SKILLERN, JR., Philadelphia: Nitrous oxid gas should always be administered to afford the surgeon as well as the patient the best conditions for a complete reduction. After the attempt at reduction, a roentgenogram should be taken. If the fragments are still unreduced, the cycle of administering gas, reducing and making roentgenograms should be repeated. It may be necessary to repeat this cycle two, four or even six times in obstinate cases, but each cycle is harmless, though perhaps slightly inconveniencing to the patient. It is only after such repeated attempts by their failure prove the fracture to be irreducible clinically that operative treatment is indicated. After reduction, a copiously padded and carefully applied fixation dressing should be put on, treating each fracture in an individual and not a routine manner. Of the methods of operative fixation, that by the use of metal plates is the least desirable, and, if indicated at all, metal fixation is best employed for fresh fractures, and not for cases of nonunion. For nonunion, by far the best method is the employment of the autogenous bone graft.

DR. EDWARD MARTIN, Philadelphia: I am in accord with the dictum that metal plates always delay union, and are to be avoided save in exceptional cases. The statistics studied by Estes show that operative treatment is less frequently required in children than in adults. This is in part due to the fact that in the young a moderate deformity has a tendency on use to gradual correction. Such tendency is never exhibited in the adult. In the latter, a good union with moderate and allowable deformity, if the bone be a weight-bearing one, may become on use a crippling and deforming one. Hence, given even a slight angulation of the leg, bone weight bearing should not be allowed for many months.

DR. CHARLES E. THOMSON, Scranton: In regard to the statement that fractures should be treated by skilled surgeons, that is not practicable. Our fractures occur in the country, and the skilled surgeons live in the big medical centers. The general practitioner has to treat many of our fractures. Dr. Roberts says, "Teach your students to treat fractures." This is the key to the situation.

Acute Pancreatitis

DR. JOHN B. DEAVER, Philadelphia: By acute pancreatitis we ordinarily understand the classical severe type, described by Fitz, in which there is hemorrhage and extravasation of pancreatic juice, resulting in profound general shock, intoxication and local destruction of tissues with ensuing gangrene or suppuration. In the last few years, surgery has revealed that the lesser inflammatory lesions of the pancreas are common. It has not been sufficiently pointed out that acute pancreatitis without the severer manifestations of hemorrhage and extravasated ferments is not uncommon. Many cases in which operations have been performed have been unrecognized, and attributed to disease of the biliary tract. The treatment of pancreatitis has not as yet been standardized because of lack of knowledge of its exact cause and the mechanism of its production. Pancreatitis is a result of infection or duct obstruction or a combination of the two. Operative intervention should aim to establish the cause and relieve it. Infective pancreatitis secondary to disease of the biliary tract should be treated by the measures adapted for the relief of biliary infection. Obstructive pancreatitis due to stone in the papilla of Vater or to other abnormality of the papilla demands relief of the obstruction. In ultra-acute cases, the question of operability enters strongly and may forbid everything except simple drainage. I protest against the sending of acute abdominal cases to the medical wards of the hospital. By the time they reach the surgeon, valuable time has been lost.

DISCUSSION

DR. ERNEST LAPLACE, Philadelphia: There has always been some mystery connected with the question of disease of the pancreas. This question of pancreatitis is in the same condition as appendicitis was fifteen or twenty years ago. There is no such condition as an uncomplicated pancreatitis any more than there is an uncomplicated appendicitis. When a violent pain is felt in the epigastrium with symptoms of shock, that patient should be transferred to the surgeon immediately and we will drain at once. Some of these cases are accompanied by a dilated duodenum with intestinal sepsis as a predisposing cause to the infections which will travel up through the ampulla of Vater and carry to the pancreas whatever infection has found its way up there. The complications of pancreatitis and cholecystitis travel together. It is the same infection. Dr. Deaver first called attention to the lymphatics. The duodenum and pancreas are supplied by the same lymphatics and the spleen and body of the pancreas by the same lymphatics. I make a plea for early operation.

DR. LAWRENCE LITCHFIELD, Pittsburgh: I have been associated with medical wards for the past twenty-five years, and I have often regretted the time lost by the fact that these cases were first sent to the medical wards. I wish to emphasize also the fact that valuable time is lost in many cases by delaying operation too long in the hope of making a definite positive diagnosis. There are several conditions in which an operation must be undertaken before a positive diagnosis can be made, if the patient's life is to be saved.

Management of Toxic Goiter

DR. CHARLES H. FRAZIER, Philadelphia: Toxic goiter may begin as simple goiter and be transformed into the toxic variety or the true exophthalmic goiter. The principal distinction to be made surgically is in reference to the severity of the case. The treatment of this condition belongs essentially to the domain of surgery. If the circumstances of a person suffering with moderate thyrotoxicosis are such as to render impracticable a prolonged period of rest, I strongly urge immediate operation and the removal of as much of the offending gland as conditions indicate. The mortality is insignificant. I have not lost a case of this type. In a grave form of intoxication the watchword is caution. It is out of the question to say what the order of procedure should be

until after the patient has been under observation in bed for a few days, during which a study of the body functions and all the available secretions and fluids has been made. Each case presents its own problem as to whether it should be treated by boiling water injections, ligation of one or more vessels at one or more sittings or by partial thyroidectomy. A good working rule when in doubt is to err on the side of conservatism. A patient should not be operated on in the stage of acute exacerbation. Rest is the most fruitful non-operative measure. I have tried the Roentgen rays and radium without appreciable effect. The relation of the thyroid to other ductless glands, especially the thymus, should not be overlooked. In seventy-six thyroidectomies for toxic goiter I have had no deaths, and in twenty-four ligations two deaths. I would not at this time consider such cases as the two fatal ones suitable for that particular operation at that cycle of the disease.

DISCUSSION

Dr. John D. Singley, Pittsburgh: Careful interpretation of the history and of the clinical manifestations of toxic goiter has taught us to avoid operation during the periods of exacerbation and in the final stages of the disease. To this, much more than to any great improvement in operative technic, is due the marked reduction in operative mortality which has taken place in recent years. The earlier that goiter patients are operated on, after the onset of toxic symptoms, provided operation is not done during acute exacerbations, the better the results, both immediate and remote. No operation is of any avail, and any will probably prove fatal in the most serious advanced cases, with widespread terminal degenerations, especially of the heart muscle, with irregular pulse, low blood pressure, and periodic attacks of delirium cordis (Kocher). The after-treatment is of the greatest importance. These patients should not be discharged from the hospital after operation to work out their own salvation, as they too often are. Careful supervision by a competent medical adviser should be carried out for several years at least.

Dr. James D. Heard, Pittsburgh: The severity of the cardiovascular disturbances in toxic goiter makes it important that patients of this type should be studied carefully in regard to disturbances of cardiac mechanism before they are submitted to operation. Alternation in force of ventricular systole should be sought for diligently, and when found in connection with a heart rate which is approximately normal, it is to be regarded as greatly increasing the gravity of prognosis in a given case. The administration of belladonna should not be a routine procedure. It should be remembered that belladonna in full dosage removes the inhibiting action of the vagus, and this result would be undesirable in cases in which the heart rate is already unduly accelerated. For like reason, the administration of atropin to guard morphin would be unscientific. Morphin requires no guarding. It acts favorably in these cases, partly through its action on the vagus, and it would be a distinct disadvantage to remove this inhibitory action in cases in which the heart rate is already accelerated.

Dr. G. M. Astley, Philadelphia: It is a question in my mind as to whether injections of boiling water should not be used first before ligation. The problem seems to be the throwing out of commission of a certain amount of gland substance. The boiling water will accomplish that. I have known cases in which, when boiling water was used, the subsequent surgical sections were very simple.

Dr. S. J. Waterworth, Clearfield: If we avoid the trachea, I believe we will have fewer bad symptoms following operation. As to operation following hot water injections, I have injected with hot water and know it renders operation much more difficult. There is produced a general thyroiditis. The tissues become matted together, and you have more difficulty in getting the goiter out.

Rectal Anesthesia in Thyroidectomy

Dr. Walter Lathrop, Hazelton: In the oil-ether rectal anesthesia the brain is not deeply narcotized, and the patient regains consciousness rapidly, while the sensation of pain is held in abeyance for a considerable time; the eye reflex is seldom lost, but muscular relaxation is complete. The method is very valuable where fear is a prominent element, as is the case in hyperthyroidism. The postoperative effects are much milder than after inhalation narcosis. In thyroidectomy, in which freedom from obstruction in the operative region is desirable, the rectal method is ideal. Also the patient can be anesthetized in bed and removed to the operating room and thus have no conception of what has occurred. This is a great aid in realization of the anociassociation method. I have used the method in 118 cases since June, 1914, with most satisfactory results.

DISCUSSION

Dr. John W. Luther, Palmerton: My experience with colon-oil-ether anesthesia is limited to forty-seven cases; thirty-six were abdominal operations in which complete muscular relaxation is of greater importance than in head and neck work. In twenty-two of my cases no additional anesthesia was required, and in eighteen of the remaining cases only a dram to an ounce of ether by inhalation was needed. The duration of operation varied from fifteen minutes to two hours. On account of the slowness in preparation, the method is not suitable when several persons are to be operated on in succession. One of my patients died of pneumonia seven days after operation; but this was a septic case, and the result cannot be attributed to ether. The narcosis is uniform from beginning to end.

Dr. W. Hersey Thomas, Philadelphia: My experience in operating on seventy-three patients under colonic anesthesia has convinced me of its value in selected cases. I have not found that rapid return to consciousness is the rule. Although the presence of some of the superficial reflexes would indicate a light anesthesia, the great majority of my patients were profoundly anesthetized. I have seen the anesthesia deepen after return of the patient to the ward, in spite of rectal irrigation. The conviction has grown that the liver, which bears the brunt of the attack in this method, is markedly affected, and that it is a toxic change in this viscus which prolongs the anesthesia. The return of consciousness is hastened by the introduction of saline solution. The patient should be kept under skilled observation for several hours after return to the ward.

Dr. Walter Lathrop, Hazleton: In abdominal cases we have had quite an experience, especially in miners having asthmatic conditions. If you start ether in these cases they choke, and must stop. These patients sleep perfectly under rectal anesthesia. I have seen very few who could not be aroused.

Surgical Treatment of Ascites

Dr. Robert T. Miller, Jr., Pittsburgh: Of five cases in which ascites was associated with cirrhosis of the liver, four were due to alcoholic or syphilitic cirrhosis, and the fifth almost certainly was due to malignant diseases. The patients varied in age from 18 to 60 years. Ruotte's operation was made in each case, four times unilaterally and once bilaterally (two sittings); in three cases general anesthesia was used, and in two local anesthesia. The only mortality was the malignant case. In all but the malignant case, abdominal paracentesis was necessary at frequent intervals before operation; after operation, the necessity for tapping the abdomen was absolutely done away with in two cases and all but eliminated in two other cases, while in the fifth case (malignant) the abdomen was not tapped either before or after operation. In one case operation (double) was followed by a decrease of the umbilical circumference from 110 to 97 cm., and an increase in average daily urinary output from 480 to 150 c.c. Of the four cases of cirrhosis of the liver, three were restored to self-support, and the fourth, a boy of 18, was advanced from a condition of invalidism to a position of helpfulness in the household. In no instance was any ill effect observed from drainage of the ascitic fluid directly into the circulation. The results obtained are encouraging; so good, in fact, as to warrant recommending a trial of this method.

DISCUSSION

Dr. James D. Heard, Pittsburgh: Statistics available as to the result of the Talma operation show that from 35 to

50 per cent. of cases of ascites due to cirrhosis of the liver may be cured by early operation. These statistics should be brought prominently to the notice of internists. The statistics of Ruotte, Soyesima and Miller indicate that veno-peritonostomy is capable of yielding such favorable results that a further trial of this method is to be recommended strongly. Operative measures should be resorted to in the early stages of ascites before the patient has been subjected to the local irritation which results from frequent tappings, repeated withdrawal causing loss of protein, and general failure of patient owing to the continued presence of a condition which, in spite of repeated tappings, usually slowly progresses toward an unfavorable end.

DR. J. E. SWEET, Philadelphia: In 1876, von Eck devised his operation, anastomosis between the portal vein and the vena cava. This operation has been applied only three or four times. Usually in true cirrhosis the portal vein is so tied up in adhesions that a true Eck fistula is not feasible. Dr. Edward Martin and I devised a modification of the Eck fistula consisting on an anastomosis of one of the large mesenteric veins with the iliac vein at the point at which they cross. That is a more positively curative procedure than the operation advocated by Dr. Miller, which amounts to continuous tapping.

Fulguration Treatment of Bladder Papilloma

DRS. A. A. UHLE and W. H. MACKINNEY, Philadelphia: Since November, 1911, when we first employed high frequency destruction, we have observed 51 primary neoplasms of the bladder. A diagnosis of benign papilloma was made in 22 cases, of papillary carcinoma in 3, and carcinoma in 26. High frequency destruction was employed in 19 of the benign papillomas, in 3 cases of papillary carcinomas, and 7 cases of infiltrating carcinomas. In all cases of tumor of the bladder, hemorrhage is the predominating and frequently the only early symptom. The bleeding is usually marked and ceases as promptly as it began. With three exceptions the monopolar Oudin current, generated from a Wappler coil, was employed and found perfectly satisfactory. The illumination was derived from a dry cell battery, and the spark from the circuit. General anesthesia is not necessary, a satisfactory local anesthesia being obtained by the use of novocain. In nervous patients or patients with a highly sensitive urethra, treatment may be facilitated by a hypodermic of morphin administered one hour previously. A clinical cure was based on freedom from symptoms, a clear urine, microscopically free from blood and pus, and the absence of any evidence of tumor by cystoscopic examination three months after the last treatment. Every patient was impressed with the possibility and danger of recurrences and advised to return at intervals of six months for cystoscopic examination.

DISCUSSION

DR. B. A. THOMAS, Philadelphia: To treat a papilloma of the bladder by any means other than high-frequency sparking or electrocoagulation must be regarded as a serious surgical error, poor judgment or selfishness. On the other hand, any form of endovesical treatment for a malignant growth, preeminently sessile carcinoma, provided it is curable radically, is the height of folly. My experience comprises not less than sixty-nine tumors, varying in size from a pinhead to masses almost completely filling the bladder. Almost invariably bleeding has been a prominent factor, but fortunately, as a rule, the first effect of electrocoagulation is hemostatic. A few patients have been so exsanguinated as to require preliminary supporting measures. In one case with 19 per cent. of hemoglobin, two transfusions were done before the treatment of the tumor of the bladder was undertaken. Without exception, cure has resulted in each case of papilloma, as well as in papillary carcinoma with a nondegenerated pedicle. In no case of sessile carcinoma or other malignant growth involving the bladder wall has cure been obtained. I have employed both the Oudin and d'Arsonval currents, and prefer the former. It seems to make little or no difference whether the current be degenerated by a static machine or a coil; the results are equally good with the latter.

DR. JOHN L. LAIRD, Philadelphia: The character of the bladder growth in relation to its amenability to this form of treatment is a serious consideration, the benign and the superficially malignant tumors being appropriate, the infiltrating malignant growths demanding immediate surgical intervention. The treatment of the various types of benign papillomas requires a selection of the kind of current to be used. The interval between treatments is important, and should be governed by three factors: the extent of bladder involvement, the type of current employed and the degree of reaction to the treatments. I wish to emphasize that all vesical papillomas are potentially malignant and, therefore, early diagnosis and eradication are of the utmost importance. High frequency destruction is beyond doubt the method of choice. For the same reason, after an apparent cure, each case should be followed for a possible recurrence. Some severe and obstinate cases require patience, and frequently the result is unsatisfactory and disappointing; but the majority respond promptly with a result little short of miraculous.

DR. EDWARD MARTIN, Philadelphia: First in regard to the operative treatment of bladder tumors, by which I mean the cutting operation: Those who observe and wish to hear from patients notice, to their astonishment, that the old operating cystoscope gives very much better results in papilloma operation than does the open operation. Those who have a certain number of these papilloma cases have observed a widespread recurrence after the operation, and there seems no adequate explanation of this, except the disturbance caused by gross traumatism. We have, first, the lesson that the local nontraumatizing treatment is better, than instrumentation. The second point I wish to bring out is the innocuousness of this desiccation in the ordinary run of cases. For all practical purposes the majority of these people could attend to their ordinary business. They have no further discomfort and their lives are not materially interfered with. When the cystoscopist is unable to decide as to the malignancy or the benign nature of the lesion, I feel that this desiccation treatment should be tried and resort to our perhaps grosser methods follow.

DR. H. M. CHRISTIAN, Philadelphia: I want to emphasize the point made by Uhle and MacKinney that every so-called benign tumor of the bladder must be considered potentially malignant, and that a man with a so-called benign tumor in his bladder has to all intents and purposes dynamite in that bladder. In cases on the borderline, where there is a chance, the patient should be given the high frequency current. I want to emphasize again the importance of looking on sudden, inexplicable, rapidly disappearing hematuria, rapidly reappearing hematuria, with or without pain, as very significant of bladder tumor and requiring examination directly.

DR. ALEXANDER RANDALL, Philadelphia: I wish to call attention to the efficiency of electric fulguration of vesical papillomas (benign) and the recognition of the ultimate and potential malignancy of all such growths. In their early stage, therefore, while still benign, vesical papillomas represent a precancerous state. By their prompt and early recognition and treatment we shall be taking a definite step forward in the present campaign for the eradication of cancer.

Venous Thrombosis and Embolism

DR. ANGUS MCLEAN, Detroit: Although various causes have been assigned for thrombosis, our experiments have shown that an infection or toxin is necessary to its production. In our series of 1,610 laparotomies, thirty-three cases were followed by thrombosis or embolism. The embolus appeared on an average about two weeks after operation. The usual symptoms are chill and fever; if the obstruction is near the surface, pain is a prominent symptom. As for treatment, when once the condition has developed, absolute rest, warmth and measures to encourage the venous circulation are indicated. In the case of a thrombus, absolute rest should be insisted on as a precautionary measure against secondary embolism. This rest must be continued until the clot has had a chance to become thoroughly organized, a process which will usually take from three to four weeks.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Albany (N. Y.) Medical Annals

September, XXXVI, No. 9, pp. 425-466

1 *Form of Reflexes in Chorea. W. B. Swift, Boston.
2 *Study of Reflexes in Diagnosis of Nervous Diseases; Alteration and Absence of Umbilical Reflex in Diagnosis of Typhoid. H. C. Gordinier, Troy.
3 Case of Pituitary Disease (Acromegaly) with Polyglandular Syndrome. J. L. Bendell, Albany.

1. **Form of Reflexes in Chorea.**—Some authors believe in a single reflex in chorea—the knee jerk. Swift shows a reflex form that may appear during the elicitation of any of the normal reflexes. This form of reflex is really so peculiar as to amount to a sign of chorea of equal dignity with the respiratory signs of Graves and the new voice sign in chorea. The form of the reflex consists in an enhancing, retarding, or otherwise varying of the normal form of the reflex. It is described as the jerk-flop-wabble form of reflex response. It is any change of reflex motion caused by a choreic contraction. It occurs most frequently in the medium severe cases; and as a whole probably about one in five cases. It may be present in all the other normal reflexes.

2. **Diagnosis of Typhoid.**—Gordinier's study is based on the study of 111 cases certified to as cases of typhoid. Of this number four proved to be cases of la grippe, three of infectious endocarditis, four of pneumonia, one of pericarditis, and one of acute miliary tuberculosis. In only one of the above-mentioned cases was there the slightest alteration of the infra-umbilical reflex. This was a case of massive pneumonia that developed a suppurative peritonitis, the result of a deep-seated ulceration, with perforation of the ascending colon; and not until this perforation complicated the case did this reflex absent itself. The ninety-nine remaining cases were true cases of typhoid, and in eighty-six of these cases there was a definite alteration of the infra-umbilical reflex — 86 7/10 per cent. Most cases of typhoid came in during the second or third week of the febrile reaction, and hence in sixty of these cases the reflex on admission was absent on both sides. In thirty-nine cases, however, that were seen during the onset of the febrile reaction it was noticed that during the beginning of the febrile reaction the reflexes were normal or slightly exaggerated, such as often occurs with the deep reflexes at the onset of multiple neuritis. But at the termination of the first week and the beginning of the second the reflex presented a characteristic alteration; that is, it was diminished first on the right side, then on the left, and in a day or two absented itself in the same manner first on the right and then on the left side. The reflexes remained absent until the temperature remained normal for several days when convalescence was well established. Then the reflexes reappeared, usually first on the side lost and then on the opposite side.

If the abdominal reflex is persistently absent after the febrile reaction has ceased, one should anticipate a relapse. In two cases of this type a definite relapse followed. In eight other cases with relapse, in which the reflex during the subsidence of the fever had reappeared, it again disappeared on the advent of the fever of relapse. Gordinier has never observed the infra-umbilical reflex absent in other febrile affections unless the abdominal cavity or peritoneum were directly affected. In three cases of paratyphoid responding at first to both the *Alpha* and the *Beta* types of the colon groups, it was absent on both sides until convalescence was complete, about two weeks after the evening temperature had remained normal. Gordinier has observed its absence on one side or other in six cases of pelvic peritonitis due to tubal disease, also in three cases of suppurative peritonitis due to perforative appendicitis, in one case of general peritonitis from ruptured gallbladder, in one case of perforation of a duodenal ulcer, and in a case of general suppurative peritonitis following perforation of the ascending colon. In thirteen cases of acute appendicitis without rupture it was absent only on the right side, reappearing again after operation. He has frequently found it present in scarlet fever and measles, and it was also present in fifteen cases of lobar pneumonia. In two cases of Laennec's cirrhosis of the liver with moderate ascites, it was present, and also in several cases of intra-abdominal tumors. It was found absent in three cases of multipara with large, loose, pendulous abdominal wall. Gordinier believes that this reflex is absent only on the rarest occasions unless some abdominal or serious peritoneal complication has ensued. He regards it as being highly suggestive or diagnostic of typhoid, or of the paratyphoid group.

American Journal of Orthopedic Surgery, Philadelphia

July, XIII, No. 1, pp. 1-178

4 *Direct and Muscular Neurotization of Paralyzed Muscles. P. Erlacher, Graz, Austria.
5 *Method of Direct Neurotization of Paralyzed Muscles. A. Steindler, Des Moines, Ia.
6 *Operative Treatment of Osteo-Arthritis. E. G. Brackett, Boston.
7 *Local Treatment of Painful Nontuberculous Joints. G. G. Davis, Philadelphia.
8 Treatment of Convalescent Stage of Infectious and Atrophic Types of Arthritis. C. F. Painter, Boston.
9 Osteo-Arthritis in Its Relation to Mouth Infection. J. Head, Philadelphia.
10 Anatomic Specimens of Unusual Clinical Interest. A. W. Meyer, Palo Alto, Calif.
11 Osteitis Deformans (Paget's Disease). F. J. Gaenslen, Milwaukee, Wis.
12 Case of Congenital Elevation of Scapula—Sprengel's Deformity. D. E. Smith, St. Louis.
13 Symmetrical Congenital Anomaly of Fourth Metatarsal Bone. C. L. Lowman, Los Angeles.

4. **Neurotization of Paralyzed Muscles.**—Experiments performed by Erlacher on monkeys showed that it is possible to achieve a useful functional result within six weeks after stitching a severed motor nerve into a new point of the muscle. Also he was able by histologic examination to demonstrate abundant nerve fibers within the muscle. Experiments on guinea-pigs achieved the same results, this clearly proving that the point of entrance of the nerve into the muscle is nonessential, and that a paralyzed muscle can be sufficiently supplied from any other point with nerve fibers. Histologic examination showed that fine fibrillae had grown out from the thick nerve fibers and had formed motor end-plates on muscle fibers of perfectly normal appearance, with all the characteristic signs of accumulation of nuclei observed normally, though much thinner and finer. So that within the first four to six weeks it was possible to differentiate without error between the end-plates of the normal and the implanted nerves.

Erlacher advocates not to be satisfied with the simple neurotomy after Stoffel, because this method does not sufficiently protect against recurrences. It is better to follow Spitzy's suggestion and do a plastic operation, attaching the surplus nerve fibers of the spastic muscles to the overstretched and weakened antagonists, attempting on the one hand to strengthen the latter by supplying them with an excess of impulses from a center which is "overirritable," and, on the other hand, avoiding the danger of recurrence by attaching the severed nerve to another nerve track, or implanting it directly into another muscle. Erlacher was also able to establish that in order to supply a paralyzed muscle it is not necessary to use the prescribed nerve tracks, but that one can supply a muscle sufficiently by sewing a motor nerve directly into it at any point, thus producing a "neurotizing" function from that point.

From experiments Erlacher draws the following conclusions: First, the nearer the periphery the motor nerve was cut, the more rapid and certain was its regeneration; often in a short time (sixteen days) the complete regeneration of the motor end-plates takes place. Second, a dissected muscle flap can be sufficiently nourished and supplied with nervous elements from the underlying muscle. Third, degenerative changes occur rapidly in an isolated muscle flap even if it remains united only by connective tissue with a healthy underlying muscle, but no such high degree of degeneration

is seen, as is seen in the case of poliomyelitic paralysis. Fourth, under the influence of the rapidly regenerating motor nerve a quickly progressive regenerative transformation takes place also in the muscle; thus after six weeks it might be considered as recovered in a functional and anatomic sense. Hence, it was evident that a paralyzed muscle can only achieve sufficient nervous functional capacity if its wounded surface rests widely on a healthy muscle.

Proceeding from these suppositions, in a further series of experiments Erlacher paralyzed a muscle by resecting its nerve, and sewed into it a broadly dissected centrally pedunculated flap from an adjoining muscle. These experiments confirmed that it is possible to supply a paralyzed muscle with nervous elements, namely, to neurotize it by way of another healthy muscle when the latter is broadly dissected and stitched into the former. Summarized, the following are the facts established: First, to provide a sufficient nervous supply for a paralyzed muscle it is not necessary to make an end-to-end anastomosis of the paralyzed nerve with a healthy one, but it is sufficient to stitch the healthy nerve directly into the muscle. Second, if no healthy nerve is at hand it is sufficient to use a flap of a healthy muscle for "neurotization"; this flap must be centrally pedunculated in order to provide sufficient innervation. Third, the point of implantation of the "*neurotiseur*" is less important.

5. **Neurotization of Paralyzed Muscles.**—Experiments as well as three clinical observations lead Steindler to believe that in the method of direct nerve implantation and muscle-to-muscle attachment, there is a possibility of a motor impulse being transmitted to the paralyzed muscle through physiologic channels. Neurotization of paralyzed muscle tissue from live nerve directly implanted seems probable, but neurotization of healthy muscle tissue by direct implantation of additional healthy nerve does not seem probable. At least Steindler found the speedy regeneration of the normal nerve and its end organs to be a barrier to the neurotization from a second nerve, or hyperneurotization, and although in one case it was possible to follow the nerve fibers as they entered the muscle tissue, still it was impossible to obtain muscle contraction from stimulation of this implanted nerve because of the preceding regeneration and restoration of the original nerve supply. In the three clinical cases cited a physiologic impulse is apparently acting on the paralyzed muscles, though Steindler cannot say as yet whether this actually means complete restoration of the nerve elements from the implanted nerve. He says that it is difficult to recognize the state of regeneration of nerve fibers in the microscope, but the finding of striated muscle fibrillae is surely suggestive of this possibility. But even in the event that the muscle-to-muscle attachment alone should be responsible for the impulse on the paralyzed muscle, which is not probable, this method would seem to be a good expedient to elicit cooperative muscle action.

6. **Operative Treatment of Osteo-Arthritis.**—The operative treatment of osteo-arthritic joints Brackett believes is applicable only: (*a*) when the disease is localized (monarticular, traumatic); (*b*) when it is the residuum of a process, which has been arrested. He cites cases.

7. **Painful Nontuberculous Joints.**—Davis is firmly convinced that the greatest cause of the persistence of pain in joints once injured or diseased is the irritation of repeated often slight traumatisms due to the movement of the parts. That this has not been generally recognized heretofore is due to the difficulty in successfully carrying out a treatment of immobilization. Davis advises absolute fixation as a cure.

Archives of Diagnosis, New York

July, VIII, No. 3, pp. 201-300

14 *Studies in Schick Diphtheria Reaction. A. Levinson and M. L. Blatt, Chicago.
15 *Diagnosis of Abnormalities of Myocardial Function. T. S. Hart, New York.
16 Pituitary Extract; Its Value in Distinguishing Between False and True Labor Pains. S. W. Bandler, New York.
17 Perversities of Internal Secretions in Their Bearing on Oral Pathology. H. Stern, New York.
18 Case of Acute Myeloid (Myeloblast) Leukemia. A. F. Beifeld, Chicago.
19 Situs Viscerum Inversus Totalis. F. Tice, Chicago.
20 *Clinical Study of Case of Epilepsy Apparently of Intestinal Origin. E. E. Cornwall, Brooklyn.
21 Diagnosis from Standpoint of Physicodynamics. J. M. Taylor, Philadelphia.

14. **Schick Diphtheria Reaction.**—Levinson and Blatt tested 208 children. Of this number sixty were normal, fifty-five were afflicted with diseases other than diphtheria or tuberculosis, eighty-six were tuberculous or suspects on whom a Pirquet was done, six had been vaccinated a few days before the Schick test was applied, and one was a case of diphtheritic paralysis. Series 1 consisting of sixty normal children between the ages of 7 months and 9 years, gave 47, or 78.13 per cent., negative and 13, or 21⅞ per cent., positive. Sex played no rôle whatever in the result of the reaction. Age on the other hand, did. All the children under 1 year of age showed a negative reaction, the susceptibility increasing with advance of age. In Series 2, out of fifty-five children afflicted with diseases other than diphtheria and tuberculosis, 34, or 61.8 per cent., showed a negative reaction to the Schick test. Here, also, as in the case of normal children, sex exerted no influence. Age was a factor, all children under 6 months reading negatively. In Series 3 thirty-three children, suspects of tuberculosis, received the Schick simultaneously with the Pirquet test. They seemed to have no influence on each other, some children giving a positive Schick and a negative Pirquet and vice versa. In Series 4, out of thirty-eight children that received tuberculin treatment, sixteen were positive. The result, however, bore no relation to the reaction obtained from the tuberculin treatment.

15. **Abnormalities of Myocardial Function.**—There is little doubt in Hart's mind that every subject of paroxysmal tachycardia has a defect of the myocardium that must be seriously considered. The prognosis is most difficult. Some patients over a period of many years have attacks which incommode them but little and the attacks become less severe, less alarming, and in some instances disappear altogether. Some have only a few attacks before the fatal termination. Hart has never seen a case that was fatal until a number of attacks had occurred, nor has he found such a case reported in the literature. The condition of the heart in the intervals between attacks is important as an aid in determining the seriousness in the individual case. If at these times the heart shows no abnormality other than occasional extra systoles, there is no imminent danger. If, however, marked valvular defects are present, if there is evidence of an old inflammation of the pericardium, if there is a general arteriosclerosis, if extra systoles constantly occur at frequent intervals, and if the heart is embarrassed in maintaining an adequate circulation in the periods of slow rate, the paroxysms will rightly be viewed with much apprehension. The paroxysm is exhausting to the heart. If the myocardial damage is made evident by the attacks only, the heart will probably successfully carry this stress; if, however, other evidences of myocardial damage exist, the strain of the paroxysm is a far more serious matter. The patients who do particularly well are young subjects with no evidence of cardiac abnormality between attacks. Middle-aged and elderly individuals sooner or later invariably develop other evidences of myocardial insufficiency and, while they may have many and frequent attacks of tachycardia without serious manifestations, the ultimate outlook is less favorable.

The frequency and duration of the individual attacks do not seem to be important factors in determining the prognosis. Much more important is the severity of the attacks as estimated by the degree of circulatory embarrassment, cardiac dilatation, the congestion of lungs and liver and edema of the extremities. Attacks associated with unconsciousness should be viewed with gravity. With a history of a moderate number of attacks over a number of years in a young adult, with intervening periods of normal heart action, one may usually give a good prognosis. When the patient is more advanced in years and has paroxysms of increasing frequency and severity, and intermediate periods characterized by signs

of cardiac insufficiency, the outcome of any particular attack is doubtful, the prognosis for the future is not good.

20. **Epilepsy of Intestinal Origin.**—Of the facts observed or elicited by Cornwall's study of this case, the following are among the more significant: The family history was negative. In the patient's previous personal history constipation appears prominently, with gastric and intestinal flatulence and discharge of foul gases from the bowel. There was a peculiar sensation experienced in the upper right quadrant of the abdomen, brought on by running, described as "feeling as a lump bumping up and down," which was sometimes accompanied by pain. For some months before the convulsive attacks appeared, the patient devoted himself closely to study and neglected ordinary amusements, social diversions and out-of-door exercise. The most significant physical findings were those revealed by the Roentgen-ray examinations, which showed a coloptosis, with the transverse colon in the pelvis; the ascending colon extending one and a half inches above the iliac crest, and the descending colon extending 3 to 4 inches above the iliac crest, notable dilatation of the terminal portion of the ileum, and insufficiency of the iliocecal valve; but no distinct obstruction anywhere in the course of the gut, and no particular stasis except in the terminal portion of the ileum. The constipation showed a tendency to persist unless relieved by laxatives.

The convulsive seizures resembled, in general, those commonly observed in epilepsy, but they showed considerable variation in character, intensity, duration and the occurrence of premonitory and subsequent symptoms. They occurred six times during the year 1913, and eleven times between Jan. 1, 1914, and June 1, 1914. After being put on a course of treatment which was aimed chiefly at relieving constipation and intestinal putrefaction, the attacks diminished greatly in frequency. One attack occurred seven days after beginning the treatment, and then there was freedom from the attacks for more than six months. During the remainder of the period of a little over a year, while under this treatment, four attacks occurred, which were milder and less typically epileptic in character than the former ones. Three of these four attacks occurred while the patient was occupied with his college work, and was getting an insufficient amount of sleep; and they took place while he was sitting at a table studying, instead of when lying down as before. The facts observed suggest the possibility of a toxic-exciting or mechanical cause of intestinal origin and they also suggest what seems to be the most promising line of treatment.

Archives of Ophthalmology, New Rochelle, N. Y.

September, XLIV, No. 5, pp. 481-610

22 Some Practical Points in Eye-Work. A. Duane, New York.
23 Fibro-Adenoma of Ciliary Body. A. J. Bruecken, Pittsburgh.
24 Protection of Normal Crystallin Lens Against Harmful Effect of Ultraviolet Light. W. E. Burge and A. J. Neill, Chicago.
25 Some Unusual Changes in Visual Fields. W. C. Posey, Philadelphia.
26 Vision; Its Economic Value and Conservation. L. B. Whitham, Baltimore.
27 Operation for Ptosis with Formation of Fold in Upper Lid. E. Machek, Lemberg.
28 Etiology and Pathology of Brawny Scleritis. W. Gilbert, Munich.

Arizona Medical Journal, Phoenix

September, III, No. 8, pp. 1-10

29 Surgical Indigestion. A. L. Blesh, Oklahoma City.
30 Pyorrhea Dentalis. H. H. Braxton, Phoenix.

Boston Medical and Surgical Journal

September 20, CLXXIII, No. 14, pp. 489-526

31 Child and Community. E. O. Otis, Boston.
32 Transvesical Prostatectomy. P. M. Pilcher, Brooklyn.
33 *Study of Effect of Rowing on Heart. R. I. Lee, W. J. Dodd and E. L. Young, Jr., Boston.
34 *Experimental and Clinical Observations on Blood Pressure in Spinal Anesthesia. G. G. Smith, Boston.
35 Pituitary Extract as Hemostatic in Hemorrhages of Lungs. M. J. Konikow, Boston.

33. **Effect of Rowing on Heart.**—The authors found that there is little difference in the size of the heart of men who have been rowing for two or four years and men who have been rowing over ten years. The hearts of these two groups are slightly larger than the hearts of a younger group who have not as yet participated in serious competitive rowing. These differences seem to be explained by the differences in age and development. The only conclusion drawn from this study is that prolonged participation in rowing under the system now in vogue at Harvard University and the Union Boat Club of Boston does not materially increase the size of the heart when the heart is sound at the beginning.

34. **Blood Pressure in Spinal Anesthesia.**—Smith claims that the blood pressure can be lowered as much by spinal anesthesia as by section of the cord in the cervical region. In his experimental work the greatest fall was caused by injection of the drug in the thoracic region, in which the vasomotor fibers which supply the splanchnic area leave the cord. This part of the vasomotor mechanism is the first affected by the drug when the injection is made in the lumbar region. The extent of diffusion of the drug within the dural sac appears to be influenced more by the bulk of the solution injected than by any other one factor. A given amount of drug in a concentrated solution diffuses less and consequently lowers blood pressure less than does the same amount of drug in a more dilute solution. The greatest effects on blood pressure were noted when epinephrin was combined with novocain. Entire fixation of the drug does not take place within twenty minutes after the time of injection. When a solution of greater specific gravity than spinal fluid is used, the extent of diffusion may be increased by gravity. Attempts to raise the blood pressure by the intravenous injection of pituitary extract or epinephrin gave only a transient rise.

Canadian Medical Association Journal, Toronto

September, V, No. 9, pp. 757-852

36 Appendicitis; Appreciation of Ochsner Method. E. S. Hicks, Brantford.
37 Bacteriology of Hodgkin's Disease. L. J. Rhea, Montreal.
38 Practical Value of Knowledge of Sympathetic and Autonomic Nervous System. J. W. McIntosh, Vancouver, B. C.
39 Tissue Respiration in Light of Recent Research. D. F. Harris, Halifax, N. S.
40 Foreign Body in Esophagus. H. H. McNally, Fredericton, N. B.
41 Unusual Case of Needle Lodged in Duodenum. W. A. Lincoln, Calgary.

Florida Medical Association Journal, Jacksonville

September, II, No. 3, pp. 65-96

42 Relaxed Vaginal Outlet, Its Diagnosis and Treatment. G. R. Holden, Jacksonville.
43 Conservation of Tissue and Function in Amputations. W. R. McKinley, Columbus, Miss.
44 Suprapubic Prostatectomy. J. C. Vinson, Tampa.
45 Locating Surgical Border-Line Gastro-Intestinal Cases. G. M. Niles, Atlanta, Ga.

Indiana State Medical Association Journal, Fort Wayne

September, VIII, No. 9, pp. 413-454

46 Is Diagnosis of Sarcoma Sufficient? M. F. Porter, Fort Wayne.
47 Episiotomy, Perineal Safety Measure. C. J. Rothschild, Fort Wayne.
48 Papillomas of Bladder. J. C. Fleming, Elkhart.
49 Complete Intraplacental Uterine Rupture During Labor. J. M. Stoddard, Anderson.

Journal of Cutaneous Diseases, New York

September, XXXIII, No. 9, pp. 611-666

50 *Spinocelled Cancers of Skin. H. H. Hazen, Washington, D. C.
51 Human Serum and Blood in Treatment of Psoriasis and Other Skin Diseases. H. Fox, New York.
52 *Treatment of Psoriasis with Autogenous Serum. W. B. Trimble and J. J. Rothwell, New York.
53 New Apparatus for Intravenous Administration of Neosalvarsan in Concentrated Solution. L. Thompson, Hot Springs, Ark.

50. **Spinocelled Cancers of Skin.**—There are, says Hazen, two varieties of prickle-celled cancer, a malignant type and a warty type, that will metastasize only under special circumstances. These growths always arise from abnormalities, hence many of them could be prevented, or at least operated on at an early date. Spinocelled cancers are apt to metastasize to the regional glands, even at an early date. The best results have come from the local removal of the growth, together with the radical removal of the draining

lymphatic glands. Any form of treatment which does not permit of the proper diagnosis and differentiation of the primary growth is to be deplored. At this point it would be well to point out that many basal-celled cancers can be clearly distinguished in the gross.

52. **Psoriasis Treated with Autogenous Serum.**—Fifty cases of psoriasis were selected by Trimble and Rothwell; thirty of these were given the serum treatments, the remaining twenty being used as controls. The controls were divided into two groups of ten each, one group being placed on 2 per cent. chrysarobin ointment, and the other on a 10 per cent. white precipitate of mercury ointment. An ointment of 2 per cent. chrysarobin was given to each patient taking the serum injections, after the sixth treatment, but so far as possible the injections were continued until the total number reached ten. In twenty-eight of the thirty patients receiving the serum injections, there was absolutely no change in the eruption before the salve was prescribed; after this time, resolution progressed with fair rapidity. The control cases furnished some interesting points. To ten of these was given 2 per cent. chrysarobin ointment, so as to compare the rapidity of action with and without the serum injections; ten also were put on the unguentum hydrargyri ammoniati, 10 per cent., to see how the rapidity of action compared with the weak chrysarobin applications. It has been almost a routine measure in the clinic to give all cases of psoriasis, at the first visit, the unguentum hydrargyri ammoniati. In a certain small percentage of mild or early cases this application would remove the lesions; if so, then the disagreeable staining, irritating chrysarobin would be avoided; if not, the case was put on the chrysarobin ointment. The controls using the white precipitate of mercury ointment acted about as was expected; some were benefited and some were not, but the comparison sought was decided. The mercury ointment was not to be compared in efficiency with the 2 per cent. chrysarobin.

The controls using the chrysarobin furnished some valuable information and caused the greatest surprise. First, the action of the drug was about the same in the control cases as in the serum group. If there was any difference, it was in favor of the control group; they seemed to progress more favorably and effectively than the injection cases; this may have been a coincidence due to individual tendencies. The surprising observation was that the 2 per cent. chrysarobin seemed to act quite rapidly and effectively and to produce dermatitis with the same frequency as the same ointment in 10 per cent. strength. The psoriasis lesions would vanish, leaving the same white areas and the same surrounding dermatitis as when a 10 per cent. ointment was used. In one or two instances a marked dermatitis was produced with the supposedly weak ointment. In one of the serum cases, a young woman, the 2 per cent. salve produced an intense dermatitis, the redness, heat and edema of the skin causing great tenderness on pressure, and being sufficient to cause sleepless nights.

Lancet-Clinic, Cincinnati

September 11, CXIV, No. 11, pp. 221-240

54 "Rochester 'Live Little Longer' Plan in Operation." M. E. Bingeman, Rochester, N. Y.
55 Hysterectomy from Viewpoint of General Surgeon. W. D. Haines, Cincinnati.
56 Five Years' Experience with Salvarsan in Syphilis. A. Nelken, New Orleans.

September 18, No. 12, pp. 241-260

57 Anesthetics. C. S. Skaggs, East St. Louis, Ill.
58 Barany Tests as Used in Differential Diagnosis of Cerebellar and Internal Ear Disease. C. E. Shinkle, Cincinnati.
59 Tuberculous Meningitis in Adults; Report of Case. H. T. Ratterman, Cincinnati.
60 Policyholders as Medium for Increasing Longevity. W. F. Blackford, Louisville, Ky.

Medical Record, New York

October 2, LXXXVIII, No. 14, pp. 551-592

61 School-Spread of Contagious Diseases and How to Control It. M. Solis-Cohen, Philadelphia.
62 Intraspinal Treatment in Syphilis; Spinal Fluid Findings. L. A. Levison, Toledo.
63 Importance of Personal Equation in Treatment of Tuberculous. W. H. Swan, Colorado Springs, Colo.
64 Diagnosis and Treatment of Gastric Neuroses. S. Wendkos, Philadelphia.
65 *Treatment of Acute Epididymitis by Aspiratory Puncture. H. W. E. Walther, New Orleans.
66 Rocky Mountain Spotted Fever Treated with Suprarenal Secretion. M. H. Smith, Basin, Wyo.
67 What Patients with Toxic Goiter Should Do and What They Should Not Do. G. P. Coopernail, Bedford.

65. **Treatment of Acute Epididymitis.**—The technic Walther has adopted is as follows: The scrotum is prepared aseptically as for any operation; the practice being to shave the skin, thoroughly cleanse the same with green soap and sterile water, and then paint the site of puncture with tincture of iodin. The affected testis is then firmly grasped with one hand, the epididymis to be punctured pointing uppermost, and the skin over the selected area of entrance of the needle is put on tension. A sharp-pointed, fairly large needle which is connected to a 10 c.c. record syringe, and which has been previously sterilized, is then thrust through the skin of the scrotum into the substance of the epididymis for one-half to two-thirds inch, and then the attempt is made to aspirate gently some of the seropurulent content. By withdrawing the needle slowly aspirating all the while, one will often succeed in obtaining fluid from the different levels in the gland when the same would not be gotten if the needle was held in only one plane. Usually two or three punctures at different points in the affected organ are made. The wounds are then sealed with a collodion dressing and a suspensory applied to the scrotum. Confinement to bed is not necessary. The only anesthetic used has been that of spraying locally the site of puncture with ethyl chlorid to freeze the part. As a rule, little fluid is withdrawn. The effect of the aspiration, however, becomes manifest by an almost immediate relief from pain, and within six to twelve hours the swelling in the gland and the fever have diminished considerably.

Missouri State Medical Association Journal, St. Louis

September, XII, No. 9, pp. 399-432

68 Congenital Heart Lesions in Infancy and Childhood. E. H. Schorer, Kansas City.
69 Renal Tuberculosis. J. P. Henderson, Kansas City.
70 Kidney Tuberculosis; Special Reference to Some Inoperable Cases. C. E. Burford, St. Louis.
71 Treatment of Congenital Club-Foot. C. A. Stone, St. Louis.
72 Suppurations of Kidney. T. A. Blackmore, Windsor.
73 Roentgenotherapy for Angiomas; Report of Cases. E. H. Skinner, Kansas City.
74 Motility of Aortic Arch. G. H. Hoxie, Kansas City.
75 Clinical Contribution to Study of Uterine Fibroids. M. H. McLean, St. Louis.
76 Cystoscopic Report of Case of Hematuria. M. Goldman, Kansas City.
77 Surgical Treatment of Goiter. A. C. Crank, Canton.

New Mexico Medical Journal, Las Cruces

September, XIV, No. 6, pp. 161-200

78 Suggestion with Regard to Medical Treatment of Cancer. E. C. Prentiss, El Paso, Tex.
79 Medical Organization and Public Health. W. R. Joyner, Roswell.

New York Medical Journal

October 2, CII, No. 14, pp. 689-736

80 New Method for Treatment of Inoperable Cancer. S. P. Beebe, New York.
81 Autolysin Treatment of Cancer of Light of Proteomorphic Theory. H. S. Williams and J. W. Beveridge, New York.
82 *Infantile Eczema. H. W. Cheney, Chicago.
83 Repair of Female Perineum. A. S. Brinkley, Richmond, Va.
84 Backache. H. Weinstein, New York.
85 Advantages of Quinin and Urea Hydrochlorid as Local Anesthetic. J. L. Amster, New York.
86 Management of Obstetric Case. S. J. Druskin, New York.
87 Radium in Rhinoscleroma. J. Guttman, New York.
88 Pituitary Extract in Obstetrics. L. J. Friedman, New York.
89 General Miliary Tuberculosis with Unusual Spinal Fluid Findings. J. Roby and A. Kaiser, Rochester.

82. **Infantile Eczema.**—In speaking of the treatment of this disease, Cheney emphasizes that external applications are not to be considered first. First thought and consideration should be the nutrition of the child, and a careful inquiry as to the food which has been given will give us a clue to proper treatment. If it is a breast-fed baby, one may often find that it has been fed at frequent and irregular intervals,

perhaps every two hours, and the mother has an oversupply of rich milk. For such a baby endeavor to do two things; first, decrease the abundance and richness of the mother's milk, and second, cut down the baby's supply. For the mother, advise more exercise and a lessening of the quantity of food which she takes, omitting particularly milk, cream and the cereals. For the baby, prescribe regularity of nursing and long intervals between feedings. The baby should not be nursed oftener than once in four hours, and not allowed to stay at the breast too long. The food can be diluted by giving the baby 1 or 2 ounces of water or barley water just before each nursing, partly filling its stomach, and thus it will not take so great a quantity of milk. Some cases persist after all these trials. They are probably cases in which there is an intolerance for some ingredient in the mother's milk, and for such a wet nurse may be tried, or if one can make the baby fairly comfortable, worry along for a few months until the child is old enough for other food. For the bottle-fed baby, vary the food constituents to suit each case. Cases which still resist all such feeding often can be cured by using the so-called albumin milk.

New York State Journal of Medicine

September, XV, No. 9, pp. 327-372

90 Metabolic Studies in Diabetes. F. M. Allen, New York.
91 Treatment of Fibroids of Uterus by Roentgen Rays. G. E. Pfahler, Philadelphia.
92 Twilight Sleep. A. J. Rongy, New York.
93 *Experiences with Malt Soup for Institution Marasmus. T. S. Southworth, New York.
94 *Blood Coagulation in Infancy. H. L. K. Shaw and F. J. Williams, Albany.
95 Treatment of Rigid Rotary Lateral Curvature of Spine by New Brace. S. Kleinberg, New York.
96 *Reinforcing Paralytic Flail Joints by Intra-Articular Silk Strands to Limit Motion and Increase Stability. B. Bartow, Buffalo.
97 Present Status of Tuberculin Therapy in Ocular Tuberculosis. W. B. Weidler, New York.

93. **Experiences with Malt Soup.**—The method adapted by Southworth was to select from day to day those cases whose condition was most critical, and to employ for each infant, in making up its daily supply of food, the number of ounces of milk, or top milk, which it would properly receive in an ordinary suitable formula. To this, and the requisite amount of water, was added the malt soup extract and wheat flour, usually in the proportion of one level tablespoonful of each for approximately each 10 ounces of the total food. The mixture was brought slowly to a boil to gelatinize the starch, and was then strained, cooled and bottled. As a life saver, or at least prolonger of life, the malt soup mixtures proved successful in nearly every instance in which they were given. The prophecy made at the start that flocculent white and green stools would become smooth and brownish within twenty-four to forty-eight hours, was, as a rule, justified. Infants who seemed doomed, ceased to lose weight, and in many instances promptly showed moderate gains.

94. **Blood Coagulation in Infancy.**—Shaw and Williams made examinations in 108 healthy infants under 2 years of age by this method, and found the determinations were between one minute fifteen seconds and one minute forty-eight seconds, and the average coagulation time was one minute thirty seconds, which is a slightly shorter time than in adults. They used the coagulometer of Russel and Brodie, as modified by Boggs and described by Emerson, consisting of a moist chamber with a glass bottom which can be placed on the stage of the microscope.

96. **Reinforcing Paralytic Flail Joints.**—The main ideas in the plan of treatment employed by Bartow are an attempt to provide better opportunities than are contained in the available operative methods for relieving these forms of disability, and also their timely employment to lessen the amount of muscular deterioration depending on disuse of a limb. The purpose kept in view has been to formulate a plan consistent with use in both the early and late periods of residual paralysis and also in young patients if desired. The procedure does not mutilate the joint, and as it causes no interference with the muscle supply, does not jeopardize the chance of improvement or recovery by natural processes inasfar as this is possible. Ankylosis, unless desired, is not the outcome of this procedure, but limitation only. At the same time the procedure possesses a range in its application whereby its repetition will safely prove additional limitation of any required degree. In about 150 cases in which this plan has been used, there has been no mortality, and in no instance an infection of a joint. This plan, proposed by Bartow about three years ago, contemplates fastening the paralytic flail joint by means of paraffined silk strands, inserted within the joint, to limit motion and promote stability for weight carrying.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

September, XXI, No. 3, pp. 93-137

98 First Aid Treatment of Fractures. J. C. Motley, Abingdon.
99 Plea for Reduction of Death Rate from Cancer of Breast. B. C. Willis, Richmond.
100 Internationalized Profession. J. M. Northington, Boardman, N. C.

Public Health Journal, Toronto

September, VI, No. 9, pp. 421-473

101 Administration of Toronto Department of Public Health. H. L. Brittain, Toronto.
102 Standardized Death Rate of British Columbia. W. E. Home.
103 Duties of Medical Officer of Health. J. W. S. McCullough, Toronto.
104 Cheap Food for Babies. R. J. Ewart.

Tennessee State Medical Association Journal, Nashville

September, VIII, No. 5, pp. 205-249

105 Acute and Chronic Rheumatism. F. Billings, Chicago.
106 Colossal Goiters. W. D. Haggard, Nashville.
107 Etiology and Experimental Production of Appendicitis, Ulcer of Stomach and Cholecystitis. E. C. Rosenow, Rochester, Minn.
108 Management of Pellagra. B. G. Tucker, Nashville.
109 Hospital Situation in Tennessee. E. C. Ellett, Memphis.
110 Cases of Removal of Foreign Bodies from Lower Respiratory Tract and Esophagus. W. L. Simpson, Memphis.
111 Eugenics and Marriage. L. A. Stone, Memphis.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 11, II, No. 2854, pp. 389-424

1 *Acidosis in Diabetes Mellitus. A. P. Beddard, M. S. Pembrey and E. I. Spriggs.
2 *Significance of Alveolar Carbon Dioxid Determinations in Treatment and Prognosis of Diabetes. E. P. Poulton.
3 Paroxysmal Hemoglobinuria; Report of Case. E. Emrys-Roberts.
4 Congenital Dislocation of Right Foot with Almost Complete Absence of Right Fibula. E. M. Sympson.

1. **Acidosis in Diabetes.**—The chief practical result of the work done by Guy's Hospital during the past twelve years on the question of acidosis in diabetes has been the demonstration that analyses of the carbon dioxid in the alveolar air of the lungs afford an index of the degree of acidosis and a guide in treatment and prognosis. The authors show that in cases of diabetes there is a relation between the alkalinity of the serum and the amount of carbon dioxid in the venous blood; the two rise and fall together without being actually parallel. In the nondiabetic cases, which were taken for the purpose of control, the alkalinity of the serum ranged from twenty-fifth-normal to thirtieth-normal. They also determined the tension of the gases of the blood circulating in the body. The means of fifty observations on ten men are 5.57 volumes per cent. of carbon dioxid and 14.89 of oxygen; the maxima are 6.11 and 15.59, the minima 4.87 and 13.91. Diabetic patients may have alveolar pressures of carbon dioxid, which are within the normal limits, although they are passing large quantities of sugar in the urine. When there is acidosis the carbon dioxid falls, and in diabetic coma reaches as low a figure as 1 or 2 volumes per cent. If under treatment with sodium bicarbonate the patient recovers, the pressure of carbon dioxid may gradually rise to the normal level. Moreover, in diabetic patients, massive doses of sodium

bicarbonate may raise the pressure to a height beyond the normal range.

2. **Alveolar Carbon Dioxid Determinations in Treatment of Diabetes.**—The object of alveolar CO_2 determinations is to measure the severity of the acidosis. Hence, Poulton says, it is useless to apply the method he used when the urine, in a case of diabetes, gives a negative result with the nitroprussid test. Under these circumstances the alveolar CO_2 pressure will always fall within normal limits. However, when the urine contains acetone bodies, it is usually impossible from the nitroprussid or ferric chlorid tests alone, to say how severe the acidosis is. In any of these cases the alveolar CO_2 pressure is a sure guide. By its means cases can readily be divided into two categories: 1. The mild cases, in which the alveolar CO_2 pressure falls within normal limits; in these cases the prognosis with regard to coma is relatively good. 2. The severe cases in which the alveolar CO_2 is definitely lower than normal; here the utmost care must be taken to prevent the onset of coma. All the time the CO_2 is below normal the patient is, as it were, on the edge of a precipice, and any disturbance, such as sudden excitement or worry, or the administration of too rigid a diet, may push him over the edge.

In these cases the actual CO_2 pressure observed will give the measure of the danger. A value of 2 per cent. means that coma may supervene within twenty-four hours. A value of 3 or 4 per cent. is less dangerous; in the worst event, coma will not come on for at least two or three days. A sudden drop in the alveolar CO_2 is also of significance; it means that acidosis is increasing, and, though the immediate danger may not be great, there is always the possibility of a further increase until coma sets in. Again, it is possible to be misled if reliance is placed on symptoms alone, without determining the alveolar CO_2, because it not infrequently happens that the rapid onset of coma may be suspected from symptoms, even when the alveolar CO_2 still remains relatively high. It does not necessarily follow that the chance of averting coma is hopeless because a low CO_2 pressure is obtained. It may be kept off for a considerable time by judicious treatment.

Edinburgh Medical Journal

September, XV, No. 3, pp. 161-240

5 Lesions of Occipital Lobe and Affection of Vision. B. Bramwell.
6 Case of Rat-Bite Fever. T. Reid and J. Ritchie.
7 Wasting of Hand; Report of Six Cases. A. F. Hewat.
8 Two Cases of Bronchiectasis (Nontuberculous) Treated with Autogenous Vaccines. R. A. Fleming and H. J. C. Gibson.
9 Three Cases of Malignant Pustule of Anthrax. A. Miles.
10 Id. J. W. Dowden.

Journal of Obstetrics and Gynecology of the British Empire, London

March-May, XXVII, Nos. 3-5, pp. 105-150

11 Investigation of Causes which Determine Lie of Fetus in Utero. W. S. A. Griffith.
12 Prevalence of Congenital Syphilis Among Newborn of East End of London. P. Fildes.
13 Condition of Larynx and Trachea in Stillborn Infant and Its Bearing on Artificial Respiration. E. A. Barton.
14 Case of Torsion of Normal Ovary. F. J. F. Barrington.
15 Two Cases of Congenital Malformation of Female Genitalia. R. P. Beatty.

Lancet, London

September 11, II, No. 4802, pp. 587-634

16 Common Aims of Science and Humanity. A. Schuster.
17 *Pathology of Trench Frost-Bite. J. L. Smith, J. Ritchie and J. Dawson.
18 *Phenolization in Treatment of Gas Gangrene. L. Mencière.
19 Plastic Operation for Closing Certain Unhealed Gunshot Wounds of Head. C. W. G. Bryan.
20 Value of Prolonged Rest in Treatment of Heart Disease in Young. G. D. Barton.
21 Succus Allii (Garlic Juice) in Control of Suppuration in Wounds. A. D. S. Cooke and V. Gabriel.
22 *Strength of Picric Acid as Antiseptic. H. L. Tidy.

17. **Trench Frost-Bite.**—The observations recorded by the authors were made on rabbits. One of the hind feet was shaved and the animal was then placed in a wide glass cylinder standing on a layer of earth which was kept dry or moist according to requirements. By this means it was found possible to reproduce in the rabbits' feet the edematous swelling characteristic of trench frost-bite. In the first place, it was found that when the mud was both wet and cold the swelling became marked in from two to three days. On the other hand, when the mud was kept dry the cold had much less effect. Constriction of the limb by means of a band of sticking plaster increased the tendency to edema in the feet exposed to cold. This effect was not obtained by a single band, but when the band was taken twice round the limb the cold produced edema more rapidly.

The effect of applying warm water (at 37 C.) to the foot after it had been exposed to the cold was to increase the edema markedly. The swelling was confined to the parts which were directly exposed to the cold; it was less marked in the hind foot which had not been shaved. The animal with a swollen foot could still walk with it, though there was a certain amount of limping. On the other hand, the evidence of anesthesia in the foot was indefinite. When the rabbit was placed in its cage in the animal house after an experiment, the swelling rapidly disappeared and it walked about normally after twenty-four hours. The microscopic examination of the tissues showed that the chief effect of the cold was on the blood vessels. The lumen was dilated and contained a certain amount of fibrin deposit; the endothelium of the intima was swollen; there was vacuolation in the muscle fibers of the media, and there was an increase in the number of cells in the perivascular tissue. In certain cases, and especially when the edema had been present for a longer time, there was a diffuse infiltration of the swollen tissue with leukocytes. The changes in the nerves consisted in edematous swelling of the axis cylinders, and this appeared to be merely a part of the general edema of the feet. There was no sign of degeneration of the myelin. The nerve cells in the cord were normal.

18. **Phenolization in Treatment of Gas Gangrene.**—In order, Mencière says, to prevent infection, the best means is embalmment of the wound. The technic is as follows: Long incisions, cleaning up the gangrenous cavity, removal of splinters and fragments of clothing, extraction of the projectile, usually a bullet or piece of shell. Protect the neighboring parts with cotton-wool and compresses, which should be as impermeable as possible, block any counter opening with a tampon, or defer making a counter incision until after phenolization. Hold up the edges of the wound with Kocher's forceps in order to form a pit. Fill the wound to the brim with a solution of crystals of 9 parts pure phenol, 1 part alcohol, and with small tampons swab out all its recesses. Allow this solution to remain in contact with the wound for one to one and a half minutes. Avoid cauterization of the surrounding skin. This requires some dexterity. Remove all excess of phenol with tampons and by gentle irrigation with strong alcohol to the amount of 3 or 4 liters (5 to 7 pints). Then at the same sitting, embalm with 150 to 200 gm. (6 to 8 ounces) of a solution consisting of 1 liter ether, 10 gm. each of iodoform, guaiacol, eucalyptol, 30 gm. balsam of Peru, and 100 c.c. 90 per cent. alcohol.

22. **Picric Acid as Antiseptic.**—Tidy found experimentally that a 0.165 per cent. solution of picric acid has the same bactericidal powers toward the culture of typhoid bacteria as has the standard 1 per cent. solution of phenol. Thus the Rideal-Walker phenol coefficient of picric acid is exactly 6.

Archives des Maladies du Cœur, etc., Paris

September, VIII, No. 9, pp. 281-316

23 Paroxysmal Premature Contractions of the Heart in Wounded Soldier. (Crises extrasystoliques provoquées par les exercices physiques chez un soldat presentant des lesions multiples des nerfs craniens.) O. Josué and J. Heitz.
24 False Alternation of Weak and Strong Beats of Heart and Pulmonary Artery. (Fausse alternance du cœur et de l'artère pulmonaire d'origine complexe.) C. Pezzi.

Bulletin de l'Académie de Médecine, Paris

August 24, LXXIV, No. 34, pp. 205-224

25 Mixed Vaccines for Typhoid and Paratyphoid. (Vaccinations antityphoidiques et antiparatyphoidiques, mixtes, doubles ou triples.) F. Widal.

26 Experimental Research Suggesting Nourishing Value of the Animal Matter of Bone, Ossein. E. Maurin.

August 31, No. 35, pp. 225-242

27 Mixed Typhoid and Paratyphoid Vaccines. H. Vincent and Chantemesse.
28 *Tardy Tetanus. L. Bérard and A. Lumière.
29 Syndrome Resulting from Wound of Cauda Equina. (Syndrome de la queue de cheval par projectile de guerre.) H. Claude and R. Porak.

28. **Tardy Tetanus.**—Bérard and Lumière have encountered a number of cases of tetanus developing on the occasion of some operation or trauma affecting a wounded soldier who had been given preventive antitetanus serum injections and had long recovered apparently from his wound. There must have been some latent spores lurking in the tissues and roused to life by the operation or trauma. The onset of the resulting tetanus is insidious, but the symptoms slowly and gradually increase in severity, the respiratory muscles finally become involved, with fatal asphyxia. Early progressive and permanent contracture of the abdominal muscles is almost constant in these tardy cases. The necessity for repeating the preventive injection of antitetanus serum before any contemplated operation or in case of trauma was emphasized by these experiences. Since this has been made a routine procedure, no further cases of this tardy tetanus have developed in their service. The early preventive injections evidently transform the clinical picture of the tetanus to a very slow but progressive disease.

Presse Médicale, Paris

September 2, XXIII, No. 41, pp. 333-340

30 Agglutination in Differential Diagnosis of Typhoid and Paratyphoid. L. Bernard and J. Paraf.
31 *Technic for Transfusion of Blood. L. Bérard and A. Lumière.

September 9, No. 42, pp. 341-352

32 The Evolution of Tuberculous Purulent Pleurisy. Chauffard.
33 Emergency Sterilization of Drinking Water. (Purification chimique des eaux de boisson: Javellisation et chloration.) H. Labbé.
34 Meningococcus Arthritis. (Manifestations articulaires meningococciques.) P. Sainton and J. Maille.
35 Conservative Economical Amputations on One Plane. (Amputation plane économique.) V. Pauchet.

31. **Transfusion of Blood for the Wounded.**—Bérard and Lumière report almost miraculous recoveries of many soldiers practically moribund from loss of blood, after transfusion of blood from another person. They give an illustrated description of their technic and discuss the precautions necessary, and the accidents and incidents that have occurred in their practice or are liable to occur. They are connected with a Lyons hospital, and relate that an advertisement inserted in the daily papers brought them 150 donors in one week. The first to apply was a physician. During the last six months they have been selecting women for the donors almost exclusively, and have never had any difficulty in obtaining all the donors needed. Carrel's technic is followed quite closely. Among the accidents that may be encountered is the finding the radial artery too small to admit the cannula; this is especially liable when the donor is a woman. The diameter of the artery should be estimated beforehand. The donor may experience discomfort or even syncope after a period of pallor, sweating, chilliness of hands and feet, thirst and acceleration of the pulse. When these symptoms appear, hot drinks, grog, tea with rum, should be given, the extremities warmed and the position of the body changed. These measures usually succeed in reviving the donor; if not, the transfusion should be interrupted and saline and camphor injected. They have never had any symptoms indicating hemolysis in the blood of the receptor. They regard the risk of hemolysis as a comparatively slight danger in view of the impending death if blood is not supplied from some source.

Archiv für Verdauungs-Krankheiten, Berlin

August, XXI, No. 4, pp. 255-334

36 *Diffuse Idiopathic Dilatation of the Esophagus in Man of 65. A. Schüle.
37 *Spastic Ileus from Tumor in Fourth Ventricle in Woman of 35. A. Schüle.
38 *Occult Hemorrhage in Gastro-Intestinal Tract. (Ueber okkulte Blutungen des Verdauungskanals.) A. Schüle.
39 *Methods for Testing the Pancreatic Secretion. (Zur Prüfung der äusseren Pankreassekretion.) J. J. Schleicher.
40 *Roentgen Differentiation of Disease of Esophagus and Stomach. (Der diagnostiche Wert des Röntgenverfahrens bei Speiseröhren- und Magenkrankheiten.) H. Elsner and H. Ury.
41 Determination of Gastric Acidity Before or After Filtering. (Soll die quantitative Aciditätsbestimmung im filtrierten oder im unfiltrierten Mageninhalt vorgenommen werden?) F. Weinberg.

36. **Dilatation of the Esophagus.**—Schüle's patient was a man of 65, apparently entirely healthy until the last year, during which occasionally food with an acid taste came up into his mouth, but there was never actual vomiting. Roentgenoscopy showed the esophagus dilated to the capacity of a liter. Treatment has been restricted to teaching the patient to empty his esophagus himself from time to time. As this extreme dilatation developed without symptoms, it seems that there must have been a congenital tendency.

37. **Spastic Ileus with Tumor in Fourth Ventricle.**—The ileus in the woman of 35 was accompanied by persisting accumulation of bile in the stomach without admixture of feces and without much peristalsis or meteorism. Schüle had a similar case some years before in which no organic obstruction was found on opening the abdomen, but the jejunum was contracted and anemic and the further course of the case revealed a tumor in the fourth ventricle. It was close to the nerve center for the vagus, and he assumes that in this way spastic ileus had been induced. Experiments have shown that irritation of the vagus in the dog causes phenomena in the small intestine. Bechterew has seen the bowel contract in dogs during irritation of the posterior corpora quadrigemina. In the present case nothing to explain the ileus was found at the operation aside from the pale and totally contracted jejunum. At necropsy two months later a tumor was found at the site of the vagus center. The bowel had not been distended and the stomach did not stiffen. Stenosis at the pylorus is liable to induce stiffening of the stomach but with stenosis below the pylorus the stiffening never passes on into the stomach past the pylorus barrier. There may be stenosis without this stiffening, but when it occurred it always indicated a high degree of stenosis, in Schüle's experience.

38. **Minor Points in Testing for Occult Hemorrhage.**—Schüle advises his patients to clean their teeth with a cloth and not brush them for two or three days before the test, as the brush may cause some minute bleeding of the gums which would interfere with the findings. He declares that examination for occult hemorrhage in the gastro-intestinal tract is one of the most important achievements that has been realized in the last ten years in the diagnosis of stomach and bowel trouble. Further research is necessary, however, to ascertain whether and how often occult blood can be found in the stools with disease processes elsewhere than in the gastro-intestinal tract. Appendicitis might prove misleading. He obtained a positive response to the test in three of six cases of uncomplicated gallstone trouble, without being able to detect any lesion in stomach or bowel at necropsy. The same occurred also in a case of cancer in the liver and pancreas. With pure gastric achylia, no blood was found in the stools in four cases examined by an exploratory laparotomy on suspicion of cancer.

39. **Tests of Pancreas Functioning.**—Schleicher devotes eighteen pages to a description and discussion of the nine various technics in vogue, commending the Gross and Wohlgemuth methods for qualitative and quantitative determination of the trypsin and diastase content in stools and urine. They have always given reliable insight into the functioning of the pancreas in acute cases. The findings in the twenty-two cases in which the various tests were applied are tabulated for comparison under sixteen headings. The diagnosis of cancer of the pancreas based on the responses to the tests in one case was confirmed by the operation. In another case the operation revealed a cyst and in a third case a nonmalignant fibrous pancreatitis. The cyst was successfully drained and the woman of 51 recovered. In the other case all the tests speak for complete absence of the

pancreas ferments, but the woman keeps in fairly good health since recovery from acute fibrous pancreatitis. The pancreas secretion was found intact with achylia, which can be explained, he thinks, by the soaps of the neutral fats stimulating pancreatic secretion.

40. **Roentgenoscopy in Esophagus and Stomach Disease.**—Cancer of the esophagus does not require roentgenoscopy, as it is clinically evident without this aid. But roentgenoscopy is of great importance in the diagnosis of cancer of the cardia and of spasmodic contraction in this region. Simple gastric or duodenal ulcer does not require it as a rule, but with suspicion of cancer or of a callous or penetrating ulcer or hour-glass stomach, roentgenoscopy is of decisive importance. When cancer is known certainly to be present in an inoperable condition, roentgenoscopy is scarcely necessary, but if an operation is still possible, roentgenoscopy should not be omitted. With the least doubt as to the malignant character of a process in the stomach, Roentgen examination is necessary to complete the diagnosis and in some cases is of decisive importance.

Berliner klinische Wochenschrift

August 23, LII, No. 34, pp. 885-908

42 Eczema of Surgeon's Hand Heals Under Protecting Medicated Adhesive Plaster. P. G. Unna.
43 Artificial Cultivation of Variola Vaccine Virus. F. Proescher (Pittsburg).
44 Precipitation Test for Syphilis. (Unter welchen Bedingungen hat die Herman-Perutz'sche Luesreaktion Anspruch auf Gleichberechtigung und praktische Anwendung wie die Wassermann'sche Reaktion?) J. Zadek.
45 Salvarsan in Syphilis; Two Thousand Cases. (Ein Fall gelungener Sterilisatio magna und durch Salvarsan-Merkur-Jodbehandlung günstig beeinflusste Syphilisfälle.) M. v. Zeissl.
46 Soldiers' Whistle to Call Aid When Severely Wounded. (Zur Auffindung von Schwerverletzten.) Alkan.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 28, XLV, No. 35, pp. 1089-1120

47 Pathology of Juvenile and Incipient Fatty Degeneration of the Coats of Arteries; Atherosclerosis. S. Saltykow. Commenced in No. 34.

Deutsche medizinische Wochenschrift, Berlin

September 2, XLI, No. 36, pp. 1057-1084

48 Dysentery in Peace and War. (Die Ruhr.) W. Kruse.
49 Serodiagnosis of Masked Cases of Chronic Dysentery. H. Strauss.
50 Technic for Enrichment of Meningococci in the Lumbar Puncture Fluid. E. Fränkel.
51 The Presumptive Germ of Typhus. (Ueber den mutmasslichen Erreger des Fleckfiebers.) G. Arnheim.
52 *Specific Treatment of Trachoma. E. Löwenstein and Herrman.
53 *Appendix Utilized in Correction of Hypospadias. H. Weitz.
54 Wounds of the Brain. (Beobachtungen bei Schussverletzungen des Gehirns.) A. Stern.
55 Operative Treatment of Wounds of the Limbs. (Zur Kriegschirurgie der Gliedmassen.) W. von Brunn.
56 Successful Operation for Progressive Thrombosis of Subclavian Vein. P. Rosenstein.
57 The Patient, Physician and Consultant. (Kranker, Arzt und Konsiliarius.) A. Neisser.

52. **Specific Treatment of Trachoma.**—Löwenstein and Herrman squeeze out the contents of a trachoma granule, grind it in saline and inject subcutaneously, and report promising results in three cases with this method of specific treatment.

53. **Treatment of Hypospadias.**—Weitz reports two cases in which he performed a successful operation for hypospadias, utilizing the transplanted appendix. The patients were boys of 11 and 13. The serosa layer of the appendix was removed before it was implanted to form the new urethra.

Medizinische Klinik, Berlin

August 22, XI, No. 34, pp. 933-958

58 *Origin and Importance of the So-Called Starvation Fever in the Newly Born. (Hungerfieber beim Neugeborenen.) A. Mayer.
59 Venereal Diseases. (Zur Bekämpfung der Geschlechtskrankheiten.) W. Fischer.
60 Principles for Surgical Work in the Field. (Chirurgische Gesichtspunkte für das Feldlazarett auf Grund bisheriger Erfahrungen.) Körber.
61 *Trichinosis. Lipowski.
62 Papular and Pustular Hemorrhagic Purpura. (Die Blutknötchenkrankheit.) S. v. Waldheim.
63 Roentgen Localization of Projectiles. (Röntgenologische Fremdkörpersuche bei Kriegsverwundeten.) K. Kaestle.
64 Overhead Cable for Transportation of the Wounded. (Beförderungsart Kranker und Verwundeter mittels Seilbahn.) S. Placzek.
65 First Aid for Fractures. (Erste Versorgung bei Knochenbrüchen.) H. Spitzy and A. Hartwich.

58. **Starvation Fever of the Newly Born.**—Mayer refers to the abruptly downward trend of the weight and upward trend of the temperature during the first three or four days after birth. The prognosis is favorable, and the disturbance does not have much practical importance. Cool packs to reduce the temperature and possibly a change in food rapidly correct the condition as a rule. It is probably the result of certain elements of normal food getting abnormally into the circulation from some transient insufficiency of the protective ferments. It soon rights itself as a rule.

61. **Trichinosis.**—Lipowski urges that the possibility of trichinosis should always be borne in mind when confronted with a case of febrile muscular rheumatism. Differentiation is especially important in soldiers, as simulation is liable to be assumed. The diagnosis is made from a scrap of tissue excised from the point where the tendon of the biceps merges into the muscle. The scrap of tissue is kept in saline and can be forwarded to any laboratory.

Monatsschrift für Geburtshülfe und Gynäkologie, Berlin

September, XLII, No. 3, pp. 199-282

66 *Serodiagnosis of Pregnancy. (Das Prinzip der Abwehrfermente und der Abderhalden'schen Serodiagnostik.) E. Baumann; (Zur Abderhalden'schen Fermentreaktion bei Nichtschwangeren.) G. H. van Waasbergen.
67 *Gynecology and the Pancreas. L. Prochownick.
68 *Liver Functioning in the Pregnant. (Zur Frage der Leberfunktionsstörung während der Graviditat.) B. Bauch.
69 Proposed Legislation on Craniotomy. (Perforation und Strafgesetzreform.) H. Lieske.

66. **Serodiagnosis of Pregnancy.**—Baumann tabulates the findings with the Abderhalden technic in 159 women at Basel. The findings were correct in all but 1.5 or 2 per cent. Van Waasbergen analyzes the findings with this test in sixty-nine nonpregnant women. He obtained a positive response in all but seven, but the response was less pronounced, as a rule, than in the pregnant.

It seems that the positive reactions are more frequent and intense in younger women, and that a febrile temperature magnifies the action of the protective ferments. He also found that the reaction was more intense as the menstrual period approached, and grew weaker after it was entered. This waxing and waning of the reaction corresponds with the development of the corpus luteum, and it seems probable that the corpus luteum thus has a stimulating action on the metabolism. He says that as a rule we can count on a positive reaction in all pregnant women and in all women during the premenstrual period.

67. **Gynecology and the Pancreas.**—Prochownick discusses the interaction of the pancreas and the internal genital organs. There is no question that pregnancy and diabetes influence each other to an extreme degree. Severe changes in the pancreas have been found in fatal cases of diabetes in pregnant women, easily explained by the interacting internal secretions. Diabetes is also liable to be aggravated by losses of blood and protracted affections in the ovaries or tubes, but especially by myomas. Many physicians can remember cases of apparently typical gallstone colic in pregnant women, but which never returned outside of a pregnancy or childbed. Women with gallstones are also especially liable to have colics at these times. He has had several cases in which violent and apparently typical gallstone colics developed between the third and eighth day after delivery, but the women have never had anything of the kind before or since. He finally interpreted these colics as having some connection with the pancreas, and modified the diet accordingly, with excellent results.

The incoercible vomiting of pregnancy also may be accompanied by pain in the stomach and cramps, persisting for some time and independent of the phases of digestion, the stomach functioning otherwise normally. These cases have

been labeled neurotic or hysteric, as nothing to suggest gallstone disease can be discovered in them, but small amounts of sugar are found in the urine, and the assumption of pancreatitis explains the above symptoms. The gradual aggravation of the symptoms and the increasing amounts of sugar in the urine in one such case gave the warning for terminating the pregnancy.

There is one case on record in obstetric annals of necrosis of the pancreas following the puerperium, and surgeons have casually mentioned in a number of cases that the women had borne a child not long before. Some mention that the women had had "gallstone colics" before, but the biliary apparatus was found normal. There can be no question that acute and chronic gynecologic affections, entailing adhesions with the omentum or thrombosis in the veins of the omentum or mesentery, may lead to necrosis of the pancreas. This is especially liable to follow a gynecologic operation.

In conclusion, Prochownick states that the literature and his own experience confirm the close physiologic connection between the pancreas and the internal genital organs, but further research is needed in this line. Functionally, also, we can assume a connection between the pancreas and glucosuria in pregnant women and the severer forms of incoercible vomiting. The data already available warn the gynecologist of the necessity for special care in operating not to leave conditions at any point that might favor thrombosis or embolism in the veins of the omentum or mesentery.

68. **Liver Functioning in the Pregnant.**—Bauch applied the galactose alimentary test systematically to twenty-two pregnant women. The responses were constantly within normal range except in one case in which a pathologically high sugar content in the blood before the test increased under the galactose.

Münchener medizinische Wochenschrift, Munich

August 31, LXII, No. 35, pp. 1173-1208

70 *Mechanism of the Agglutination Reaction. (Zur Theorie der Gruber-Widalschen Reaktion.) B. Stuber.
71 Treatment of Pulmonary Tuberculosis with Intensive Red Light. H. Gerhartz.
72 *Convalescent Serotherapy in Scarlet Fever. (Serumbehandlung des Scharlachs.) E. Reiss and J. Hertz.
73 Origin of Hard Traumatic Edema of Back of Hand. K. Stromeyer.
74 *Sensitive Test for Mercury in the Urine. M. Perelstein and J. Abelin.
75 *Early Diagnosis of Tuberculosis of the Vertebrae. (Frühdiagnose der Wirbeltuberkulose.) T. Janssen.
76 Clinical Phenomena and Operative Treatment of Aneurysms. H. Lengnick and O. Weiss.
77 Treatment of Wounds of the Eye in War. (Der Wert der Bindehautdeckung im Kriege.) R. Cords.
78 Wounds of the Skull. (Erfahrungen über Schädelschusse; Bedeutung des Röntgenbildes für die Schädelchirurgie.) E. Joseph.
79 Vibrio Like That of Cholera Found in Sausage. F. Kutscher.
80 Culture Medium for Meningococci. F. Kutscher.
81 Recovery After Removal of Shrapnel Ball in Right Ventricle. (Schrapnellkugel in der rechten Herzkammer.) R. Freund and C. Caspersohn.
82 Wounds of the Face Involving the Nasal Cavity. (Gesichtsschüsse mit Beteiligung der Nasenhöhle.) G. Krebs.
83 Emergency Orthopedics. (Apparate zur Kriegsorthopädie.) A. Heymann.
84 Medicinal Antivermin Arm and Leg Bands. (Imprägnierte Schutzringe gegen Ungeziefer.) R. Bohlmann.

70. **Theoretical Explanation of Agglutination Test.**—Stuber describes his personal research on this phenomenon of immunization which, he is convinced, has to do with fats rather than albuminous substances. Testimony is accumulating more and more, he asserts, in regard to the unreliability of the agglutination test, and he was himself able to induce a positive agglutination response with the most heterogeneous bacteria. It was also positive in dysentery in Gachtgens' research. There is, however, a specific agglutination titer, and precision in the diagnosis of typhoid can be obtained only when the highest titer of possible agglutination is determined for a large number of typhoid cases and an average taken as the standard to differentiate typhoid. There is much to sustain the assumption that the fats are the most amenable of all substances to chemical reactions. The albumin molecule seems to act merely as the transporting molecule for the chemically readily reacting fat cleavage products. The response to the agglutination test seems to be a quantitative specific process with a relative chemical identity of the bacterial cell.

72. **Serotherapy of Scarlet Fever.**—Reiss and Hertz used the mixed serum from several scarlet fever convalescents, injected it intravenously in large doses, and declare that their further experience with this form of serotherapy has fully confirmed its preeminent efficacy, actually life saving in many cases. The dose has to be at least 50 c.c. for children and 100 c.c. for adults. The injections have to be commenced before the fourth or fifth day to be promptly effectual. Ordinary serum sometimes produced the same effect as the convalescent serum, but this was not always the case, and hence it is not to be depended on. Normal horse serum seemed entirely impotent. They took the serum from the donors between the eighteenth and twenty-fourth days, after negative Wassermann tests and excluding tuberculosis and septic cases. About 100 c.c. of blood can be drawn for the purpose from older children and 200 c.c. from adults. The indications for this serotherapy are the severer toxic form of scarlet fever, the pulse small and irregular with cyanosis, delirium and restlessness. On the other hand, when the toxic condition is the result of secondary infection, this serotherapy is comparatively useless.

74. **Determination of Small Amounts of Mercury in the Urine.**—The test is based on precipitation of the mercury by means of basic iron acetate. The findings with this and other tests are tabulated for comparison in forty-two cases, all confirming the extreme delicacy of the test.

75. **Early Diagnosis of Tuberculosis of the Spine.**—Janssen comments on the fact that vertebral tuberculous lesions are so seldom recognized in an early stage. Irreparable damage is usually wrought before the disease process is suspected. Much is gained if the physician even thinks of the possibility of tuberculosis of the spine instead of ascribing the symptoms to rheumatism, neuralgia or lumbago. He relates two cases in which massage, etc., were applied for assumed lumbago with eventual disastrous results. In other cases a gravity abscess from a vertebral tuberculous process simulated appendicitis; appendectomy led to no relief, and not until several months later was the case explained by the manifest vertebral process. The tenderness in the cases of this kind was not at McBurney's point, but along the course of the ilio-inguinal nerve. On the basis of the mistaken diagnosis of sciatica, treatment was instituted in some by baths, electricity, etc., which directly aggravated the tuberculous process beyond repair. Pain in the back on long standing should suggest possible tuberculosis of the spine, or even slight discomfort in the back on standing quietly or sitting at table. This was the very earliest symptom in many cases, and suggested vertebral involvement when found in the afebrile tuberculous. When there is backache after a long walk the process is apt to be more advanced. The pain is felt at some point in the spine, with also discomfort at the upper and lower ends of the spine. These pains after walking may be referred to the region on each or one side of the spine, and they may be mistaken for pleurisy, or there may be a kind of girdle sensation; this strongly suggests vertebral disease. When it is located low down, there may be pains in the lower abdomen, predominantly in the ilio-inguinal region, which may also be tender.

Tenderness along the inner margin of the ilium and the farther course of the nerve is more characteristic than pain in the sciatic or other nerves. Pain and tenderness increase after long walking and, if the temperature rises, the picture of appendicitis may be deceptively simulated. He has only rarely encountered spasmodic contracture of the long muscles of the back in the early cases or pain in the spine when the head is struck. Roentgenoscopy is advisable in all cases, but is seldom very instructive in the early stages. Conservative measures are of little use unless supplemented by immobilization. He rarely uses a plaster cast in the early stages, preferring a sail-cloth stretcher and husk mattress,

(*Hirsesprcu*), moving the patient always on the stretcher. After an interval he has the patient lie prone, raising the upper part of the body a trifle to correct the tendency to gibbus. General heliotherapy is a useful adjuvant. A complete cure is usually realized in time in the majority of cases, and striking results have been obtained even in advanced cases with pronounced paralysis.

Wiener klinische Wochenschrift, Vienna

August 5, XXVIII, No. 31, pp. 829-852

85 Trophic Disturbances with Gunshot Wounds of Peripheral Nerves. F. Steinberg.
86 Diagnosis of Urethral Gonorrhea in Women and Girls. A. Gluck.
87 Plaster Casts That Repel Vermin. (Zur Frage der Läusebekämpfung.) N. Swoboda.
88 Prophylaxis of Venereal Disease After the War. B. Lipschutz.

August 12, No. 32, pp. 853-880

89 Immunization Against Dysentery with Toxin-Antitoxin Mixtures. B. Busson.
90 Typhus at Przemysl in the Spring of 1915. B. Lipschutz.
91 Symmetrical Gangrene of the Skin of the Face in Terminal Phase of Tuberculosis. H. Z. v. Zellenberg.
92 Bayonet Wounds of the Diaphragm. (Stichverletzungen des Zwerchfells durch das Seitengewehr.) H. Hinterstoisser.
93 Vaccinal Immunity. L. Unger. Commenced in No. 31.

Zentralblatt für Chirurgie, Leipzig

September 4, XLII, No. 36, pp. 649-672

94 *Air in the Skull After Shrapnel Wound. (Die intrazerebrale Pneumatokele.) L. Kredel.

94. **Air in the Skull.**—Kredel remarks that an accumulation of air in the skull after a gunshot or shell wound is one of the new clinical pictures encountered in this war. Duken has reported two such cases of intracranial pneumatocele, as he called them, and Kredel here reports another with the Roentgen findings before and after operative relief. In his case the term intracerebral pneumatocele is more appropriate. The symptoms were those of pressure on the frontal lobe. Nothing to suggest a valve action could be discovered.

Zentralblatt für Gynäkologie, Leipzig

September 4, XXXIX, No. 36, pp. 627-650

95 *Twenty-Eight Years of Experience with Uterine Cancers. (Behandlung und Statistik des Gebärmutterkrebses im Kleinbetrieb.) L. Prochownick.

95. **Uterine Cancer.**—Prochownick here reviews his life work in this line, recalling the various phases of treatment through which this led him in the course of his long practice, from almost absolute therapeutic nihilism through the radical operative era down to the conservative era ushered in by radiotherapy. Between 1882 and 1910 he performed 328 operations in 536 cases of uterine cancer, and at the very least he has permanently cured 8 per cent. of the women. Further improvement must be along the lines of radiotherapy, in particular for the uterine cancers which develop so slowly and without symptoms that they are already inoperable when first seen.

Zentralblatt für innere Medizin, Leipzig

September 4, XXXVI, No. 36, pp. 565-580

96 *Recurring Tetanus. H. Brandt.

96. **Recurring Tetanus.**—Sick reported once a case in which the patient had three separate attacks of tetanus at six weeks' intervals and recovered. Brandt here reports the case of a young officer who developed tetanus after a shrapnel wound of the foot, and recovered, but was still confined to bed for seven weeks when a new and more serious attack of tetanus developed. The incubation period was long, both times, and the man recovered.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 26, XXXVI, No. 58, pp. 897-912

97 Management and Treatment of the Insane. (La cura della pazzia.) P. Ercolani.
98 Serotherapy in Scarlet Fever. (Il siero Marpmann nella cura della scarlattina.) V. Russo.

September 1, No. 59, pp. 913-928

99 *Suprarenal Treatment in Nephritis. (Opoterapia surrenale e nefriti.) T. Silvestri.

99. **Suprarenal Treatment in Nephritis.**—Silvestri states that considerable work in the line of organotherapy in nephritis has been done in Italy. He here analyzes the results, especially with suprarenal treatment. Antonio gave small doses of epinephrin in thirty cases of scarlatinal nephritis in children, and with good results. Fede extols epinephrin by the mouth as a valuable aid in nephritis of any kind at any age, but says that the effect is more apparent in children, as the elasticity of the kidney tubules and glomeruli is greater, while the suprarenals are larger in proportion than in adults. All agree that the epinephrin makes up for the deficit from suprarenal insufficiency. Silvestri here reports some experimental research in this line and four clinical cases. His conclusions are that epinephrin is a most valuable aid in acute nephritis, but that it is of no use in chronic disease of the kidney, for reasons which he enumerates.

Pediatria, Naples

September, XXIII, No. 9, pp. 621-688

100 Lipase Content of the Organs. (Sul contenuto in lipasi degli organi.) A. Clerici.
101 *Treatment of Epidemic Meningitis. M. Ponticaccia.
102 Cyst in Mesocolon of Boy of 9. (Cisti linfatica multiloculare del mesocolon in un bambino.) U. de Conciliis.

101. **Epidemic Meningitis.**—Ponticaccia recently had seven cases of meningitis and in six no benefit from antimeningococcus serum was apparent. Two women died, as also a boy of 11, and a girl. The disease was mild in the fifth and sixth cases and the children recovered. The seventh patient was a boy of 10 with extremely severe meningitis and a germ resembling, but not identical with, the meningococcus was isolated from his spinal fluid. No benefit was apparent from serotherapy or other measures, but prompt and permanent improvement followed intraspinal injection of 1 c.c. of hydrogen peroxid in a 20 per cent. solution. After injection of 5 c.c. of this fluid, the boy fell at once into a calm sleep as if a narcotic had been given, and slept for six hours, while the temperature dropped from 40.8 C. to normal for two days, but then rose again. It subsided anew under repetition of the injection, and the third day he was given 5 c.c. of a mixture of equal parts of hydrogen peroxid and distilled water, thus 2.5 c.c. H_2O_2. Recovery was soon complete.

Policlinico, Rome

September 5, XXII, No. 36, pp. 1197-1228

103 Typhus. (Il tifo esantematico o tifo degli accampamenti.) P. Sabella. Commenced in No. 35.

Medical Section, No. 9, pp. 389-432

104 *Pathologic-Anatomic Studies of Hemolytic Jaundice. (Ittero emolitico.) P. Sisto.
105 Salvarsan in Treatment of Progressive Paralysis. V. Massarotti.

104. **Hemolytic Jaundice.**—Sisto's article is accompanied by a colored plate showing the findings in three typical cases. He discusses the necropsy findings in detail, especially in the bone marrow, spleen and biliary apparatus, and the evidences of destruction of the blood corpuscles in the spleen. He also reviews the history of hemolytic jaundice from Hayem-Minkowski-Chauffard to Widal, Gilbert and Banti. The results of splenectomy are throwing light on the pathogenesis of hemolytic icterus. Also the discovery that the disease may be installed and long under way before manifest jaundice appears.

Riforma Medica, Naples

September 4, XXX, No. 36, pp. 981-1008

106 Pathogenesis of Oxaluria. E. U. Fittipaldi.
107 Vaccination Against Typhoid. (Intorno alla clinica della vaccinazione antitifica.) G. Oliaro and A. Ceconi.
108 Arrest in Development in Consequence of Mitral Stenosis. (Sull' infantilismo mitralico.) L. Ferrannini. Commenced in No. 32.
109 Scientific Organization of Measures for Crippled Soldiers. L. Ferrannini.

Russkiy Vrach, Petrograd

XIV, No. 26, pp. 601-624

110 Rare Case of Splenic Infarct. E. N. Vinteler.
111 Case of Heart Block with Spasmodic Auricular Fibrillation. Y. S. Schwarzman.
112 Draining of Purulent Wounds. A. T. Berdiaeff.
113 *Honey in Diabetes Diet. A. Y. Davidoff.

No. 27, pp. 625-648

114 *Exophthalmic Goiter and Tuberculosis. F. P. Bialokur. Commenced in No. 26.
115 Cesarean Section in Eclampsia; Recovery. K. D. Vachnadze.
116 *Skin Tuberculin Test in Schoolchildren. M. N. Keifetz.

113. **Honey in Antidiabetic Diet.**—Davidoff found honey to be a good substitute for sugar and other sweet foodstuffs in diabetes. It prevents acetonemia and diminishes the amount of sugar in the urine in spite of the fact that honey contains 75 per cent. sugar. One patient used up within ten days 1 pound of honey without any increase of the sugar rate in the urine. When the honey was stopped for some time and the percentage of sugar rose, the patient was given four teaspoonfuls of honey daily, and the sugar rate again dropped. Instead of honey in substance a jelly was used made of honey. Davidoff here reports six further instances of the beneficial action of honey in diabetes.

114. **Exophthalmic Goiter and Tuberculosis.**—Bialokur thinks that there is a causal connection between tuberculosis and Basedow's disease. In 10 per cent. of his tuberculous patients he found symptoms of exophthalmic goiter; predominantly in women, one man to ten women. Symptoms of excessive thyroid functioning may occur in the very incipient stage of tuberculosis. They seem independent of the gravity of the case, the age, sex, etc. In fact, he thinks that symptoms of Basedow's disease may indicate the existence of a latent tuberculous infection. When tuberculous symptoms are pronounced, the symptoms of Basedow's disease change the clinical picture, producing a thyroid-tuberculosis combination. Successful treatment of the exophthalmic goiter symptoms may improve the pulmonary process.

116. **Skin Tuberculin Test in Schoolchildren.**—Keifetz examined 276 children of various ages, from 6 to 19, for the Pirquet reaction to tuberculin and found it positive in 53 per cent. Those children that live in favorable circumstances gave the positive reaction only half as often as schoolchildren living in poverty and unhygienic surroundings. The Pirquet test is specific for tuberculosis, and indicates a tuberculous infection. Especially common is the positive result in the presence of early physical signs of latent tuberculosis. It is therefore desirable, he reiterates, to examine all schoolchildren for tuberculosis with this simple and practically decisive method.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

August 28, II, No. 9, pp. 1239-1310

117 *Radiotherapy in Gynecologic Disease. (Stralen-behandeling bij ziekten der vrouwelijke geslachtsdeelen een gevaar.) B. J. Kouwer.
118 Diphtheria and Pseudodiphtheria Bacilli. M. van Riemsdijk.
119 Vaccine Therapy Effectual in Hay Fever; Two Cases. (Twee gevallen van hooikoorts, zeer belangrijk verbeterd door vaccinotherapie.) A. Kooijman.

September 4, No. 10, pp. 1311-1398

120 *Treatment of Pylorospasm in Infants. L. Delprat.
121 Should Persons with Tuberculous Antecedents Be Advised to Go to the Tropics (Dutch East Indies)? A. E. Sitsen.

117. **Radiotherapy of Gynecologic Disease.**—Kouwer lauds the efforts to cure malignant disease with radiant energy, as a new and promising field for effectual work. But he warns impressively against extending this treatment to the field of gynecology without full recognition of its dangers. Its efficacy rests on the basis of destruction of the essential elements of the ovaries; that is, it induces an artificial castration. Some claim that the amount of destruction can be graduated, and that it is possible to attain the desired end without actually killing the essential element of the ovary, but, he says, they do not know what they are talking about. Our knowledge of the structure and functioning of the ovary is still too rudimentary for a scientific basis for therapeutic action, and the history of operative gynecology has many records of serious mishaps from intentional or unintentional castration. But no one passes severe judgment on this, as all know that the mishaps occurred as surprises during an honest effort to improve conditions. But the castration induced by radiotherapy goes counter to the lessons of experience, and he denounces the whole system of radiotherapy of the internal female organs unless they have outlived all functional usefulness. He says that institutes for radiotherapy are springing up all over the land and the mails are flooded with prospectuses advocating radiant energy in treatment, in particular for gynecologic affections, without a hint of the inherent dangers.

120. **Pylorospasm in Infants.**—Delprat reports the details of twenty-one cases. Thirteen of the infants were dismissed in good condition; another died from intercurrent pneumonia; one was lost track of, and a third was practically moribund when brought in. Five others succumbed to the effects of the pylorospasm. The proportion of thirteen recoveries in twenty-one severe cases is sufficient to endorse the treatment applied, Delprat considers. The child is kept as quiet as possible. As needed, 50 or 100 gm. of physiologic salt solution are injected subcutaneously, and, generally, small amounts of food are given: from 10 to 15 gm. an hour. If the child is too weak to nurse the breast, it is fed breast milk by the spoon or tube. If breast milk is not available, then albumin milk, diluted cow's milk or buttermilk is used. The food can be individualized, as no special food seems to have a specific action on pylorospasm. Some infants do better with ten small feedings and others with the same total amount distributed in five feedings.

If the vomiting keeps up for several days, a sedative is given, papaverin hydrochlorate, beginning with a daily dose of 5 mg. half an hour before feeding. If little or no effect is apparent, the amount is increased to a daily dose of 15 mg. given in two injections. To date, no higher dosage than this has ever been required. The vomiting was generally arrested by this or else the child did not seem able to bear the papaverin and it was discontinued. Delprat quotes from the *American Journal of Diseases of Children* as well as extensive European literature, citing in particular Knöpfelmacher's favorable experiences with papaverin reported at Vienna in 1914 and Mayerhofer's in 1913. The latter was able to witness with the Roentgen rays the subsidence of the muscular spasm under the influence of the papaverin. Fodisch has reported similarly excellent results from another sedative, and Leiner has published a case refractory to papaverin. Januschke reported last year that he injected an infant subcutaneously with 100 mg. of papaverin during the day without untoward consequences. He also gave a child of 10 a dose of 200 mg. three or four times a day with good results. Encouraged by these reports, Delprat used papaverin in five of the twenty-one cases and the results were decidedly encouraging for this method of treatment.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXVI, No. 9, pp. 1073-1176

122 Diseases of Molds, Yeasts and Bacteria. (Mikrobernes sygdomme. Infektionsbegrepets utvidelse.) Sopp.
123 *Hypophysis Tumor. (Hypofysetumor, diabetes insipidus, let infantilisme og imbecilitet.) N. B. Grøndahl.
124 New Self-Registering Perimeter. H. Schiøtz.
125 *Color Test for Uric Acid in the Blood. (Kolorimetrisk bestemmelse av urinsyre i blod.) H. F. Høst.

123. **Diabetes Insipidus and Infantilism from Hypophysis Tumor.**—The patient was a youth of 16 with true diabetes insipidus, slight infantilism and he was somewhat backward in intelligence. Alimentary glucosuria was also pronounced. The assumption of a tumor in the hypophysis was confirmed by roentgenoscopy, and when seen a year later a tendency to acromegaly was unmistakable. Vision was not impaired, but the lad drank about six liters of water a day. The general health seemed good.

125. **Color Test for Uric Acid in Blood.**—Høst has modified the Folin-Denis method so that the test can be applied to as little as 5 c.c. of blood. He describes the technic in detail and the findings with comparative tests, all testifying, he declares, to the reliability of the modified method.

Ugeskrift for Læger, Copenhagen

September 2, LXXVII, No. 35, pp. 1395-1428

126 Roentgen-Ray Findings in Normal Large Intestine. II. (Bidrag til den normale Tyktarms Rontgenologi.) T. E. H. Thaysen. Concluded in No. 36.
127 Fibrinous Bronchitis in Boy of 6. Israel-Rosenthal.